The OIL WEEKLY

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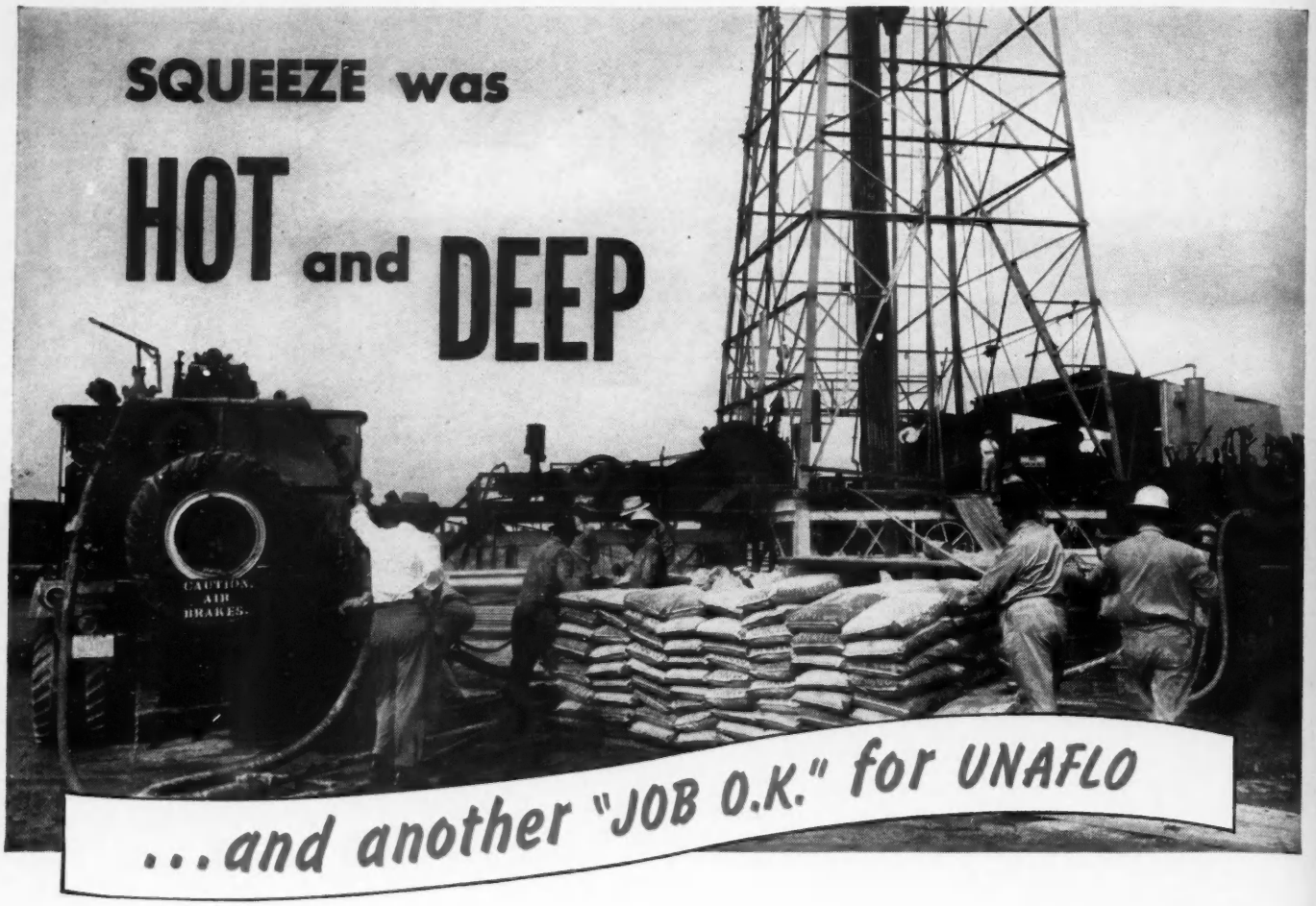

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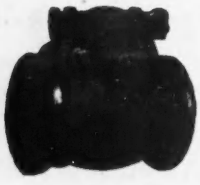
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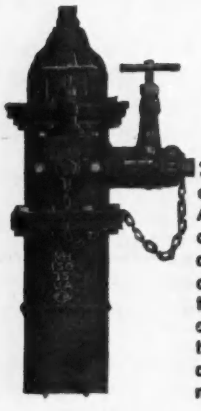

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Looking Ahead

WITH THE EDITOR

AS THE OIL WEEKLY has been able to improve its foreign connections (they have been vastly improved since the close of the war) we have also been able to develop promptly an increasing amount of information on production outside the U. S.

In the case of many countries which formerly did not make available for publication their crude production figures, we are now receiving such figures each month.

Consequently, the table of world production, by countries, from the beginning of the oil industry in each country, down to now, which will appear in the annual YEARBOOK-FORECAST ISSUE of THE OIL WEEKLY February 10, will be more up-to-date and complete than any similar table in any previous issue of our or any other publication.

Which reminds us: Oil men are invited to make use of the greatly expanded library which is now a part of THE OIL WEEKLY'S editorial department equipment. For many years we have wanted to expand our library in accordance with the expanding operations of the oil industry. Only a few days ago our editorial department moved into new quarters, especially designed for editorial department work.

Library space was expanded more than ten-fold. A professional librarian is in charge. Our development of data (much of which is exclusive) not only on domestic and foreign exploration and operations, but on technical subjects as well, is beginning to give promise of genuine assistance to not only our own editorial department but to such visitors as may wish to make use of it. Library hours 8 A. M. till 5 P. M. Location, 3301 Buffalo Drive, Houston.

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The OIL WEEKLY has performed a specialized editorial service for the worldwide drilling, producing and pipe line industry. Year after year, more and more men engaged in this specialized business have added their names to the growing list of subscriber-readers to the point where today there are few men of authority in the oil producing business who do not make a habit of reading *The* OIL WEEKLY.

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FOR THE DRILLING-PRODUCING AND PIPE LINE INDUSTRY

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The OIL WEEKLY

ENGINEERING NEWS STATISTICS

R. L. DUDLEY, President, Publisher A. L. BURNS, General Manager

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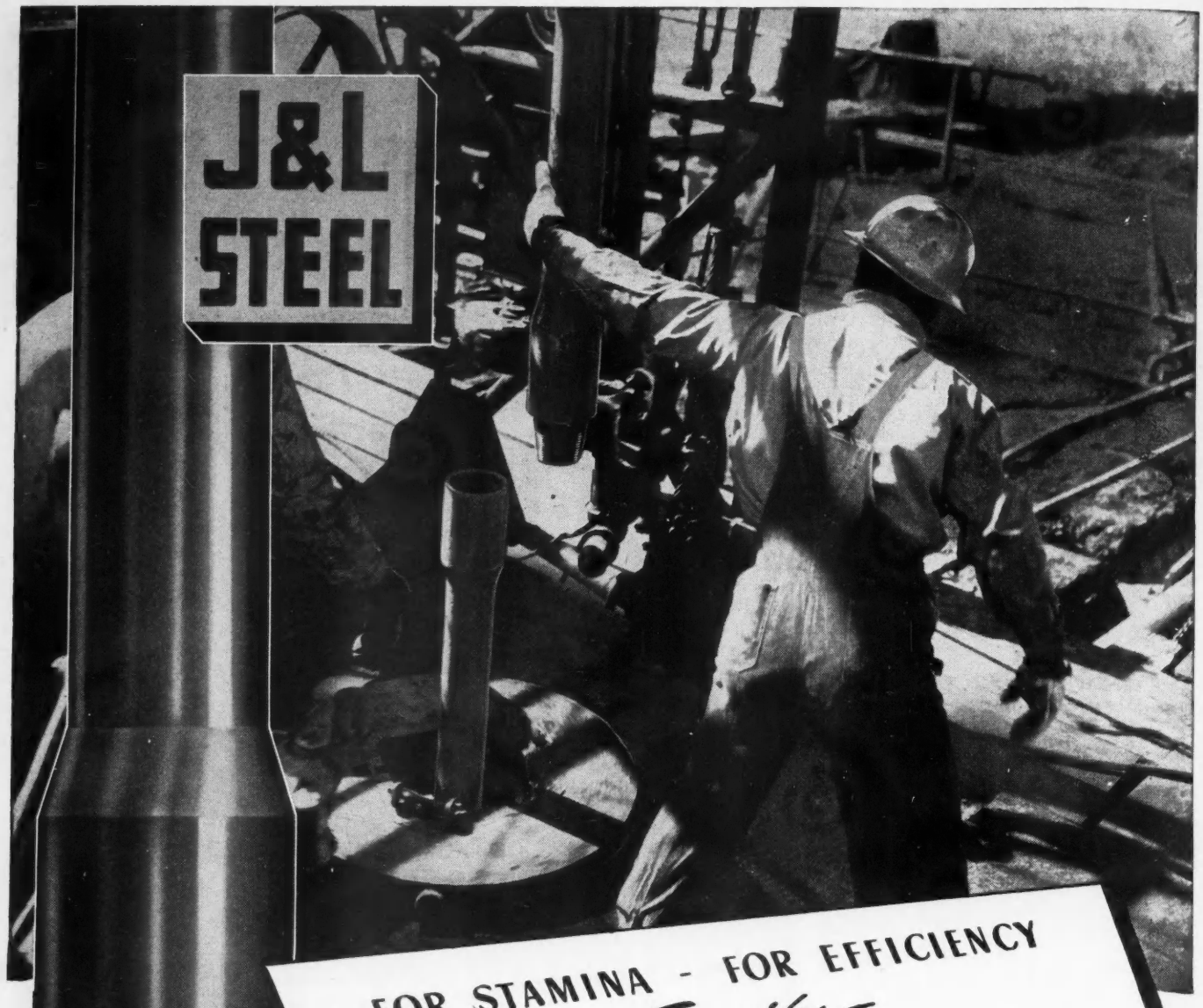

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THE CHANGING Panorama

No Trend Toward Contract Drilling

THERE is no indication thus far that the decision of Union Oil Company and Continental Oil Company to abolish their California drilling departments and contract all of their work is the beginning of a trend of the Pacific Coast.

A check in the Texas and Mid-Continent areas also fails to indicate that any such action is planned by major companies. In fact most of the companies contacted appear cool to the idea. They generally maintain the number of strings of tools which they can keep busy year in and year out with additional wells drilled during periods of high activity being contracted.

Moreover, most of the larger companies operating in Texas and the Mid-Continent sectors are already contracting 100 percent of their wells. Some companies who operate their own rigs use them mostly on wildcat tests. Two or three firms do maintain large numbers of company rigs and probably will continue to do so as long as their drilling programs are high.

However, unofficial reasons back of the Union and Continental move are sound. The action relieves the companies of some of their expenses in connection with unemployment insurance, taxes and accounting, eliminates heavy inventory drilling equipment and supplies that must be maintained even during slack drilling periods, and drilling costs may be reduced in contracting the wells. Also eliminated is the possibility of labor disputes arising in the drilling and maintenance departments. In the event the move develops into a trend at a later date, it likely will be stimulated by labor problems.

Yet, the larger companies all have men in their drilling departments who have been with them perhaps 25 years, and turning them loose isn't easy.

Story With Moral

HERE'S a story with a moral, if you're looking for one. Or, even if you're not, we recommend it. It's from *Bagologys:*

"A man who seemed to know what he was talking about told me that a maker of one of the tablets that fizz when you put them in water disliked the Roosevelt administration so much in its early days that he decided to spend all his profits on advertising so that he wouldn't have to pay any taxes.

"The upshot was that his business doubled, tripled, and keeps on growing. His taxes now greatly exceed his total earnings of a few years ago."

1947 Prescription

THE nation's business magazine editors believe that growing consumer resistance to high prices will bring during 1947 a general levelling-off in commercial activity. This shaking-down in the price structure may be nothing more than a mild readjustment of an overgrown buyers' market, but, the editors warn, failure to halt the wage-price spiral; prolonged strikes for higher pay which throttle production in key industries and failure to maintain a high rate of man-hour production may result in a serious business recession in 1947.

That here's a sensible prescription cannot be gainsaid. Congress should bend its back in a sincere effort to fill it correctly. Labor leaders also have a major role and it is to be hoped that they will cooperate and not by their acts jeopardize the gains which labor itself has made. Industry, the other factor, likewise must be depended upon for fair handling of the questions that constitute its end of the problems involved.

Continued Story—Petroleum Research

THE fact that it is a tough job that they've undertaken has not deterred nor discouraged Dr. Shepard W. Lowman, chairman and his American Association of Petroleum Geologists research committee in their search for ways and means of getting more oil out of the earth.

Early this month this group sat down at Wichita, Kansas, and reviewed the work that had been done by the committee's 50 members as well as consider the ideas of several hundred other geologists who sent in their opinions. The final report will be made at the annual AAPG meeting in March.

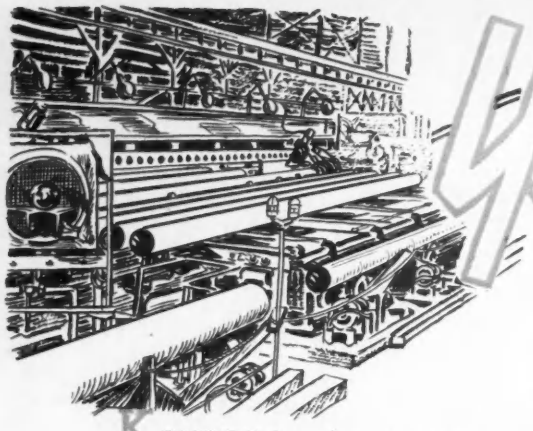
One thing, however, remains certain and that is a vast research job is ahead for the oil industry.

It is so great an undertaking that the committee believes that many should contribute their time, money and facilities to it. The API likely will be called upon, along with geological societies, American universities, research foundations and both federal and state agencies.

So it appears this is but another chapter of the petroleum research story which has been a continuing one in these columns.

The total result of such an intensive and extensive research program would, if an increase of only a few percentage points, be quite worthwhile, as Dr. Lowman pointed out in Wichita. The proven reserves of the world is, say 30 billion barrels of oil. One percent of that will run you 300 millions.

Truly, every barrel of oil added by research will help. Just as, says the AAPG group, every contribution to the over-all effort along research lines carries possibilities that not only will benefit men in the oil industry, but the nation and the world as well.

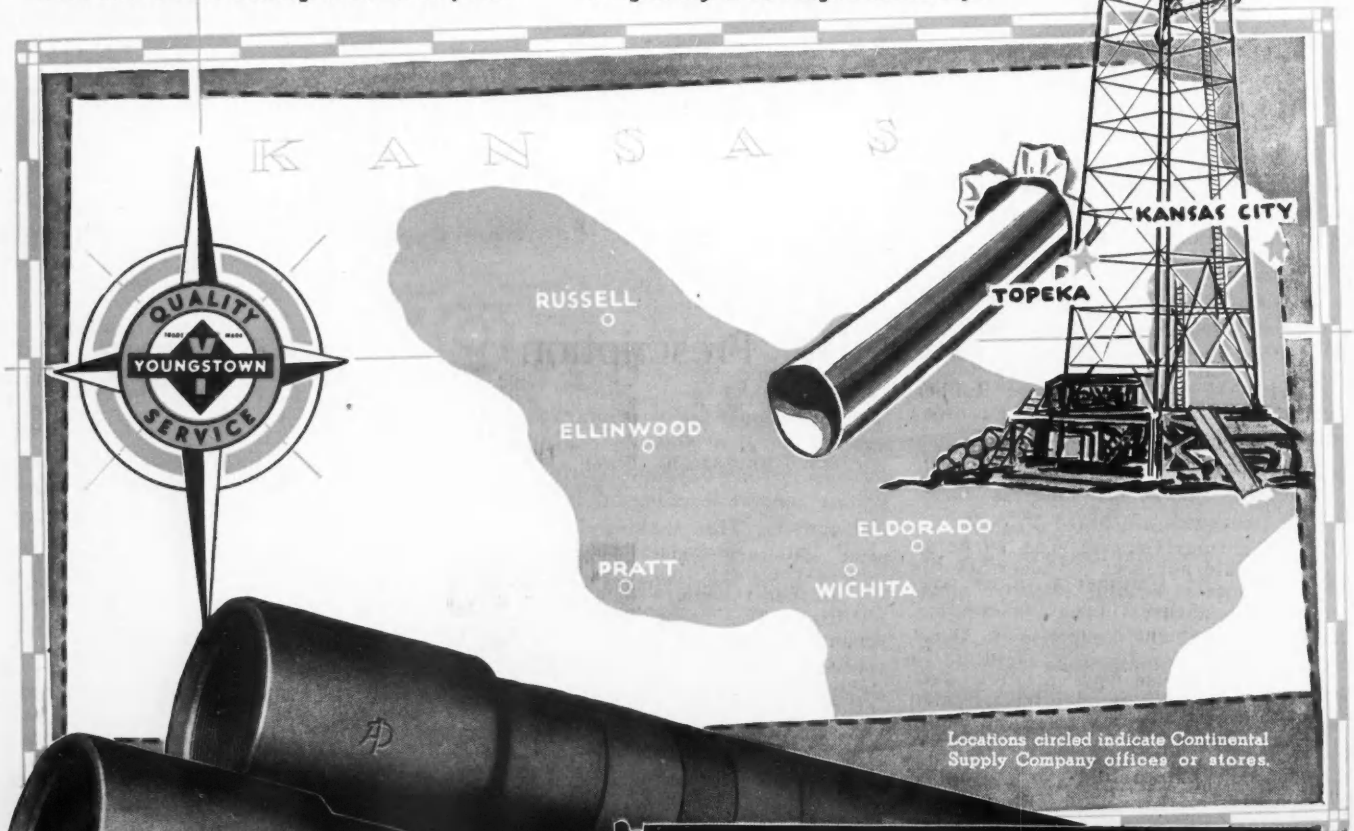


Youngstown to KANSAS

KANSAS has been an important oil and gas producing state for nearly half a century. In fact, it was the year Youngstown rolled its first oil country tubular goods--1903--that the Sunflower State first approached a million barrels of crude production.

In its all-time output of oil, Kansas ranks fifth among the states--fifth also in 1946 production. Proven reserves have fallen somewhat during recent years, but more wells are forecast for the future and footage to be drilled is on the increase. Kansas is not a deep well state, but the drilling trend is to lower horizons, with a new depth record of nearly 8,000 feet in Meade County in 1945.

For over 40 years Kansas operators have found that Youngstown Oil Country Tubular Goods have the sturdiness and built in quality to meet all the exacting demands of Mid-Continent drilling and production. Here as in other areas, oil men are able to depend on Youngstown drill pipe, casing, tubing and line pipe for good performance, whether service conditions are corrosive or normal. Through long experience they have come to recognize the orange bands as the mark of quality and dependability.



Locations circled indicate Continental Supply Company offices or stores.

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THE WEEK'S NEWS

A BROAD program to deal with important current oil questions has been mapped out by the National Petroleum Council which, however, held that the Interstate Oil Compact Commission, and not itself, was the proper agency to cooperate with the government in meeting the flared gas problem, and displayed a determination not to be lured into fields outside the boundaries set for it by the Department of Justice. Story below.

Small Business Unit—The Department of Justice has set up a small business unit and has issued a blanket invitation to small businessmen to submit their difficulties. "It is not necessary that a small businessman have proof of a violation of the antitrust laws before he can come to us with his problems," Assistant Attorney General Berge announces. Story below.

API and Oil Pact—API board of directors last week asked ratification of the Anglo-American oil agreement after receiving State Department assurances regarding official plans and intentions. Page 29.

Rubber Situation—Better than anticipated recovery of the Far Eastern rubber industry is indicated by statistics placing 1946 shipments at some 875,000 long tons, of which more than 350,000 tons reached the United States. The RFC has increased its selling price for natural crude rubber from 22½ to 25¾ cents per pound, but forecast an early drop in the price of synthetic rubbers.

Senate Oil Investigation—Senator Ed Moore appears determined to get the Senate to reconstitute the special petroleum investigation committee, formerly headed by Senator Joseph O'Mahoney. Page 29.

Sale of Big Inch—Sale of the Big Inch pipe lines for either oil or natural gas appears to be all set as a result of the refusal of the Senate Armed Services Committee to report legislation holding up disposal until Congress can study the matter. The House Interstate and Foreign Commerce Commitee was in the midst of hearings on a similar measure. Page 32.

FPC Service Area Plan—Federal Power Commission, true to its promise, is distributing copies of a staff proposal to relax controls on "service area" extensions of natural gas facilities, to give the industry an opportunity to comment before the final report on the natural-gas investigation is written. Page 32.

Gas Pipe Line Fight—Another fight over pipe line privileges appeared in the making as Tennessee Natural Gas Lines asked the FPC to hold up part of a Southern Natural Gas Company application contemplating the furnishing of gas to Chattanooga, filed as the commission announced refusal of a petition of Panhandle Eastern Pipe Line Company to reconsider the authority granted Michigan-Wisconsin Pipe Line Company for a transmission line from Texas to Michigan and Wisconsin. Page 32.

New Small Business Unit For Justice Department

Small businessmen dissatisfied with their place in the economic structure are invited by Attorney General Tom Clark to bring their troubles to the Department of Justice, where a small business unit has been set up under the administration of Charlmers Hamill, formerly counsel for Firestone Tire and Rubber Company, to promote "the free competitive system of private enterprise."

Clark's announcement indicated that any and all complaints will be handled in which "Big Business" is the aggressor, and in a supplementary statement Assistant Attorney General Wendell Berge said it would not even be necessary for complainants to be able to prove violation of the antitrust laws.

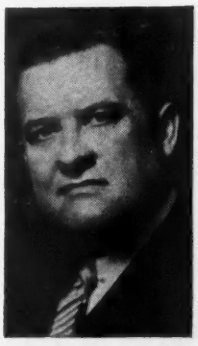
With departmental requests for funds for the coming fiscal year soon to be studied by a House Appropriations subcommittee, Clark reminded businessmen who might expect to take advantage of his offer that the assistance he can render will depend upon the "budgetary limitations" that may be imposed by Congress. President Truman, in his budget, asked for $2,500,000 for the antitrust division, and department spokesmen have intimated that many new cases are contemplated.

Jester for Compact

Governor Beauford H. Jester has been petitioned to appoint himself on the Interstate Oil Compact Commission in a resolution adopted by the executive committee of the Texas Independent Producers and Royalty Owners Association.

New Petroleum Council by First Acts Shows Itself to Be Going Organization

The National Petroleum Council last week reviewed a variety of problems facing the oil industry and moved to deal promptly to solve several of the most pressing in what both newly-elected Permanent Chairman Walter S. Hallanan and OGD Director Max W. Ball later declared was a meeting which established the council firmly as a going organization.



W. S. Hallanan

Acceptance of the council by agencies other than the Interior Department was indicated by remarks of Army and Navy officials and requests from the War Department and the Civil Aeronautics Administration for certain assistance.

The council's deliberations started with the election of Hallanan, president of the Plymouth Oil Company, Charleston, West Virginia, who has been acting as temporary chairman since last June, to serve through 1947 as its head. The nearly 50 members attending then proceeded to elect N. C. McGowen, president of United Gas Pipe Line Company, Shreveport, La., vice chairman, although McGowen was not present, thus putting representatives of both the oil and natural gas industries in key positions.

Meeting January 20, on the eve of the council session, the agenda committee drafted its report on matters to be dealt with by the organization, later adopted in the formal session, modifying its position on some items after hearing Ball and his special consultant, H. Chandler Ide.

Statistical Work

As a result, the council agreed to appoint a temporary committee to cooperate with the OGD in a study of the improvement and simplification and methods of assembling and disseminating statistics on a world-wide basis, which at a previous meeting January 13 the agenda committee had held to be a matter to be handled by a government agency, but refused to undertake the compilation of statistics on reserves and availability. However, it is expected Ball will continue to press for the development of information of availability on a MER basis (THE OIL WEEKLY, December 30).

It agreed also to appoint a temporary committee to prepare a technical evaluation of present domestic refining capacity for the production of military aviation fuels, as requested by the Air Technical Command.

Because of fears that such action might be in violation of the restrictions on council action laid down by the Department of Justice, the NPC declined to set up a general and continuing commit-

tee to which special problems might be referred from time to time, but agreed to set up special committees to consider individual problems as they arise and are submitted formally by the OGD.

The council also refused to deal directly with the problem of flared gas, taking the position that conservation of natural gas is a matter for industry action subject to the power of the states to prevent waste, and recommended that in this field the OGD cooperate with the Itnerstate Oil Compact Commission.

Military Plan Vetoed

It also turned down a proposal of the Army-Navy Petroleum Board for establishment of a military petroleum advisory committee to advise and recommend with respect to war emergency military petroleum plans, such as the protection of industrial facilities, dispersion of surface facilities, research and development for the military services and the meeting of emergency military requirements under various conditions. The agenda committee took the position that such a committee would be in conflict with the Department of Justice limitations, and suggested that the secret information desired can best be obtained by the appointment by the OGD of specialists to give it information and advice direct.

A proposal for creation of a committee to make factual studies of the nation's petroleum transportation systems from the standpoint of their adequacy to meet national defense and other emergency needs was improved by setting up separate committees to deal with the various phases of transportation, such as rail, pipe line, truck, tanker and barge, but limited their work to findings of fact.

A committee also was created to consider the adoption of international standards for the measurement of liquid fuels and fuels used for aviation, requested by the Civil Aeronautics Administration.

A report from the committee on high pressure tank cars, together with a letter from Reconversion Director John R. Steelman showed that no further cars will be diverted from the liquefied petroleum gas industry for the Army fertilizer program. Improvement is in sight but a severe car shortage will exist through April at least.

Lease Provisions Hit

A report also was received from the committee on federal leasing regulations, objecting to a number of them as inconsistent with, or not warranted by the language of the leasing laws, particularly with respect to maximum acreage limitations, option limitations, and rentals and royalties and assignments of leases, but commending the department for affording the industry full opportunity to be heard before the regulations were promulgated.

Some improvement in the materials situation has occurred as a result of the elimination of price controls and lifting of government priorities and directives, it was reported by the materials committee, but the outlook for the future "is uncertain, due to continuing demands already declared by labor in the coal, steel, electrical and automobile industries in connection with forthcoming renewals of contracts."

The dynamite situation began easing after price control was suspended and operators are now managing to get along with the supply, the committee said. Action initiated by the OGD, supported by the petroleum division of the State Department and the Army-Navy Petroleum Board, also has resulted in the elimination of excessive export controls on all important items for petroleum operations with the exception of tin plate. Shortages of certain chemicals for vital refinery operations, however, show no signs of improvement and continue to be very serious.

Materials Shortage

"More than a year after the war the market supply of materials is in such a state of confusion that many materials are more difficult to obtain than during he worst stages of the war," the committee commented.

"All types of petroleum operations necessary to the public welfare are affected. For instance, many essential drilling operations are delayed or curtailed by shortages of casing; needed pipe lines are delayed or prevented by shortages of line pipe; refineries are affected by shortages of such items as seamless high pressure line pipe and chemicals; the quality of gasoline is affected by the shortage of lead; petroleum operators cannot build houses needed for employes in oil field camps because of the shortage of building materials; many petroleum products used by the public are affected by shortages of paper and metal containers."

The committee believed that "there are adequate production facilities in this country to produce the materials listed in sufficient quantities."

The committee recommended that all priorities be abolished, that construction of public works be deferred until present shortages of materials are relieved, and that legislation be enacted "which will give labor the protection and rights to which it is entitled, consistent with the rights of others, and at the same time encourages productivity instead of strikes, stoppages and slow-downs resulting from existing legislation which create scarcities which cause increased costs and prices which cause more strikes."

The one discordant note of the meeting was a lengthy statement by H. J. Porter, president of the Texas Independent Producers and Royalty Owners Association, of Houston, declaring there is no need for either the OGD or the council, which he charged was "created with the ultimate purpose of acting as liaison between the international commission that would be set up under the Anglo-American oil treaty and our domestic oil producing industry."

Porter declared the problems submitted to the council have not been of sufficient importance to warrant business men from all over the country traveling to Washington to consider them, and "I think they were just axle grease to keep the buggy ready for the wild ride that domestic oil production is going to be given when and if that treaty is ratified."

He told the council that Secretary Krug has stated he has no desire to obtain Federal regulation of the oil industry, but recently was quoted as saying he would recommend to Congress enactment of a law to regulate the burning of flared gas which, he said, "would be just a left-handed way of taking over control and regulation of the oil producing industry."

"The ultimate aim, in my opinion, of the Department of the Interior and the State Department is for international and national control and regulation of the oil industry," Porter said. "I think this council in meeting here every three months, when it is so apparent that there is no necessity for such meetings or any necessity for the council either, builds up the prestige of the oil and gas division to the point where they can go to Congress and ask for power to control and regulate the oil industry and their influence will be so great that it will be very difficult, if not impossible, to defeat their aim."

Porter's statement was heard without comment, and placed in the record without action.

Points to Box Score

At the close of the meeting, Ball declared the council had clearly indicated its intention of adhering closely to the limitations placed upon it by the Department of Justice and its determination to make its own decisions. Both points, he said, were demonstrated by its action on ten recommendations made by the OGD, his "box score" showing that it had received favorable action on five, with improvement of some, part acceptance of two and rejection of three.

The next meeting of the NPC will be held April 15. By that time two and possibly three additional marketing representatives likely will be added.

New Lease Policy

The Department of Agriculture has adopted a policy of leasing lands subject to the provisions of the Farmers Home Administration Act for general development of oil and gas resources.

The department shortly is expected to announce details of its plan and the conditions under which leases will be granted. A very considerable acreage has been held by the department under this act; some of the lands sold were subjected to reservation of 75 percent of the mineral rights, and a sizeable proportion of the lands now held, it was said, offer possibilities of oil development.

Cadman Medal

Robert P. Russell, president of Standard Oil Development Company has been designated by the Institute of Petroleum, London, to receive the Cadman Memorial medal for outstanding petroleum research. Russell will deliver the second Cadman Memorial lecture in London June 4 on "Progress in Petroleum Research."

API Board OK's Anglo-American Oil Pact After Hearing Assurances

A resolution recommending Senate ratification of the Anglo-American petroleum agreement was adopted by the board of directors of American Petroleum Institute January 22 following receipt of a letter from Under-Secretary of State William L. Clayton declaring there is nothing in the pact leading to federal regulation of the oil industry and that the "State Department has no policy or program which contemplates the creation of a petroleum body of a regulatory or of an executive character."

Clayton's letter came in response to one from API President William R. Boyd, Jr., transmitting a copy of a resolution adopted by the board in November, setting forth its understanding of the agreement, in which the under-secretary concurred, and calling attention to statement of department officials which gave a contrary impression. Boyd, accordingly, called upon the department for a clarification of policy on which the board could base its final action approving or disapproving the agreement.

The International Petroleum Commission provided for in the agreement, which has been the crux of the controversy over whether the Senate should ratify it, "has no right or authority to regulate or control the foreign operations of American nationals, nor in any way to regulate or control the domestic industry of the United States," Clayton declared.

"Neither has it any right or authority to revise existing concession contracts since Article II (A) explicitly provides that 'all valid concession contracts and lawfully-acquired rights shall be respected, and that there shall be no interference directly or indirectly with such rights.'"

While the agreement provides for the possible negotiation of a multilateral oil pact among all interested producing and consuming countries, which would establish a permanent International Petroleum Council, he said, all activities of the department with respect to such an arrangement will be kept within the framework of the policy, he set forth.

"In view of certain misunderstandings that have arisen in regard to the purpose and scope of the agreement," Clayton said, "it would seem to be in order again to state that the fears held by some members of the petroleum industry that the agreement, if approved, would provide a basis for government regulation of the petroleum industry, either domestic or foreign, or of the international petroleum trade, or would provide a basis for the extension of the powers of the federal government are completely without foundation."

The State Department last week disclosed its priority list which, if followed, means the Anglo-American oil pact would be reached about March 1 when aggressive efforts would start looking toward Senate ratification.

The API board also discussed the pressure-tank car situation and adopted a resolution requesting the House Interstate and Foreign Commerce Committee to start hearings immediately and make an investigation of the entire situation to determine whether the Army is entitled to the cars it has demanded for its overseas fertilizer program. The board felt that since it is now too late for the fertilizer to be delivered in time for spring planting, the Army plan should be dropped and the cars used for essential domestic purposes.

Portal Suit Action

On the question of portal-to-portal pay suits, the board agreed to join with the Independent Petroleum Association of America and the Mid-Continent Oil and Gas Association in presenting a statement on behalf of the industry before the Senate Judiciary Committee.

Preceding the board meeting, the API public relations committee met for a further discussion of organizational problems, discussing such matters as how men will go into the field and what they will emphasize, how the headquarters will operate, and how the activity will be financed.

U. S. Crude Oil Production

(Estimates compiled by THE OIL WEEKLY. All figures indicate daily averages in barrels.)

STATE OR DISTRICT	PRODUCTION IN WEEK ENDED January 25	January 18
Alabama	600	600
Arkansas	72,500	73,000
California	901,400	880,500
Colorado	38,200	36,200
Florida	240	240
Illinois	200,500	194,600
Indiana	17,200	17,300
Kansas	285,300	257,050
Kentucky	27,750	29,600
Louisiana	408,375	408,375
North Louisiana	94,750	94,750
South Louisiana	313,625	313,625
Michigan	42,300	42,700
Mississippi	87,850	86,050
Missouri	100	100
Montana	21,000	22,600
Nebraska	700	700
New Mexico	103,500	103,500
New York	13,650	13,600
Ohio	8,000	7,800
Oklahoma	364,650	363,650
Pennsylvania	36,000	35,900
Tennessee	35	35
Texas	1,931,615	1,931,615
Tex. R. R. Comm. Districts:		
Dist. 1—S. Central	19,085	19,085
Dist. 2—Lwr. Gulf Coast	133,110	133,110
Dist. 3—Upr. Gulf Coast	412,175	412,175
Dist. 4—S. West	206,525	206,525
Dist. 5—E. Central	33,700	33,700
Dist. 6—E. Texas Field	301,000	301,000
Dist. 6—Rest of N. East	99,435	99,435
Dist. 7-B—W. Central	34,000	34,000
Dist. 7-C—West	27,585	27,585
Dist. 8—West	464,725	464,725
Dist. 9—N. Central	118,225	118,225
Dist. 10—Panhandle	82,050	82,050
West Virginia	7,750	7,400
Wyoming	112,000	101,200
Total United States	4,681,215	4,614,315

Total stocks, foreign and domestic, January 18, as reported by the Bureau of Mines were 221,144,000 barrels.

Moore Insists on Renewal Of Senate Oil Committee

With a precedent for the establishment of special committees set by the Senate's action last week in continuing the War Investigating Committee, Senator Ed Moore of Oklahoma will press for reconstitution of the Special Petroleum Committee heretofore headed by Senator Joseph C. O'Mahoney of Wyoming.

A resolution providing for this action is pending before the Public Lands Committee, which is expected to meet this week and Moore will ask that it take prompt action.

Moore believes that there is a need for a special committee to investigate oil problems and that it would be of considerable service to other committees which must pass upon legislation involving petroleum since it would include in its membership three senators from each of the committees on Foreign Relations, Interstate and Foreign Commerce, and Public Lands, as well as two members to be selected by the presiding officer.

Among the inquiries which Moore has in mind for immediate prosecution are the recent activities of Standard Oil Company (New Jersey) and Socony-Vacuum Oil Company in acquiring an interest in Arabian-American Oil Company, the Anglo-American petroleum agreement, and the proposed 18-nation reciprocal trade agreement.

Oklahoma Oil Circles Eye Garvin County Producer

A wildcat in Oklahoma's productive Garvin County may prove to be one of the biggest discoveries ever found in the state, as estimates of its production soared from 1000 to 2000 barrels of oil per hour.

The well is Sohio Petroleum Company's Howard 1, SE SE 17-1n-2w, about two miles northwest of Eola, and the same distance northeast of the Roberson oil and gas pool.

A strict tight hole, no official data is being released by the company, but it is believed that the pay is coming from about 100 feet into the McLish sand, with total depth approximately 10,730 feet.

The test's estimated production has caused a scurrying for leases. One official of a major company in Tulsa stated that "this looks like a major development for Oklahoma. From all indications it will be one of the biggest producers the state has ever seen."

California Strike Notice Given by Oil Workers

Strike notices have been filed against 63 California oil companies by J. Elro Brown, director of the Oil Workers International Union (CIO) District 1 office at Bakersfield, Calif. Virtually all of the big California companies and many smaller producers and refiners are affected. The strike notices are said to be based on the failure of the companies to meet a demand for an hourly wage raise of 25 cents.

Egloff Will Speak at Tulsa Nomads Gathering

Dr. Gustav Egloff, research director of Universal Oil Products Company, Chicago, world-renowned scientist, will be the principal speaker at the annual dinner of the Tulsa Chapter of Nomads January 31. New chapter officers will be installed as follows: Stanley F. Wilcox, of Seismograph Service Corporation, president; Earle E. Smith, National Tube Company, vice president; Anthony Gibbon, THE OIL WEEKLY, secretary; Fred A. Karns, International Service Company, assistant secretary; Kenneth O. Hoevel, National Supply Company, treasurer; Charles E. Duller, Wells Surveys, Inc., assistant treasurer; L. S. Reagan, Webster Engineering Company, sergeant-at-arms; B. E. Groenewold, Bethlehem Supply Company, deputy sergeant-at-arms. Shep Miers, Southwest Supply Company, and Henry A. Bourne, Republic Steel Corporation, were elected regents.

Egloff is chairman of the science committee, International Petroleum Exposition. He recently returned from China where he acted as consultant in work of rehabilitating China's petroleum plant facilities.

Conservation Measures Being Talked In Colorado

Legislation pertaining to a new oil and gas conservation law for the State of Colorado is being studied. At a hearing last week before the Colorado Gas Conservation Commission, industry representatives expressed their views as generally favoring a conservation bill, but opposed to a production tax and proration.

Chairman Warwick M. Downing appointed a committee to study the problems of state conservation, gas-oil ratios and the Rangely field production, findings to be presented later to the commission. R. V. Rodman, Bay Petroleum Corporation; A. M. Ballard, Fred M. Manning Company, Inc.; R. J. Gengler, The Texas Company; Charles S. Hill, independent; L. L. Aitken, Continental Oil Company; J. F. Cullen, Stanolind Oil & Gas Company, and J. L. Dugan, Equity Oil Company, comprise the group.

Measures of preventing future waste in the Rangely field were discussed at another meeting. H. A. Stewart of The Texas Company, and R. L. Carruthers of The California Company said that the majority of the wells were producing on a gas-oil ratio of 300 to 1 with operators trying to reduce this ratio. The group asked appointment of a committee to study the Rangely field with the U. S. Geological Survey and the Colorado Conservation Commission.

Tax Forum Held

Problems of the independent oil and gas producer arising from federal taxation were given special attention at the annual federal tax forum of the Mid-Continent Oil and Gas Association in Shreveport last week.

Speakers on the forum included E. E. Hunter of Houston, Humble Oil & Refining Company; Martin F. Casey of San Antonio, Forest Oil Corporation; B. A. Hardey of Shreveport, president, Independent Petroleum Association of America; William O. Taylor, Houston attorney; Steve Stahl of Oklahoma City, and Robert Ash, Washington attorney.

M. J. Lasseigne of Shreveport, Arkansas Fuel Oil Company, was chairman of the arrangements committee.

Los Angeles Nomads Elect

New officers of the Los Angeles Chapter of Nomads, recently elected, are shown above, left to right, standing: J. A. Engstrand, Grant Oil Tool Company, assistant secretary; B. M. Landis, Web Wilson Oil Tools, secretary; R. J. Eiche, export sales representative, president; Fred C. Ripley, International Derrick & Equipment Company, vice president; Waldo Moore, Cavins Company, treasurer; B. Reinhold, Abegg and Reinhold Company, assistant treasurer. Front row: Ted Sutter, Baker Oil Tools, Inc., regent; Lee J. Laird, Chiksan Company, sergeant-at-arms; Earle M. Boggess, Baker Oil Tools, Inc., deputy sergeant-at-arms; W. F. Bettis, M. O. Johnston Oil Field Service Corporation, regent and retiring president. They will be installed February 15.

API Chapter Elects

William M. Schulz of Mt. Pleasant, district geologist, Cities Service Oil Comany, was elected chairman of the Michigan chapter, American Petroleum Institute, at the annual meeting. He succeeds William E. Schoneck of Grand Rapids, of Ohio Oil Company.

Other new officers include: O. E. McAlester, Mt. Pleasant, Sun Oil Company, first vice chairman; Lester W. LeFavour, Mt. Pleasant, Gulf Refining Company, second vice chairman; and Earl G. Hartman, Mt. Pleasant, Gordon Oil Company, secretary-treasurer; E. M. Mulvaney, National Supply Company; W. J. Bryan, Dowell Inc.; Noah Andrews, Union Rotary Corporation; and C. F. Knollenberg, superintendent of production, Sun Oil Company, all advisory board members for two years.

API Chapter Election

Election and installation of new officers is scheduled for the first 1947 meeting of the Houston Chapter API, January 29, in the Texas State Hotel at 6:30 p.m. The program includes a talk by Dr. J. Brian Eby, consulting geologist of Houston, who will give "A Report on the European Oil Industry."

Louisiana Revokes Order Permitting Gas Allowable

A 60-day allowable order authorizing H. L. Hunt to sell 50 million cubic feet of gas daily from the Lucky field, Bienville Parish, North Louisiana, to Tennessee Gas and Transmission Company has been revoked by State Conservation Commissioner Joseph McHugh on the grounds that no public hearing to fix allowables had been held.

Louisiana's gas conservation policy opposes increased export of Louisiana natural gas to regions supplied with other fuels for industrial use.

The Hunt interests have about 15 wells in the field and under a 6-month order, which ended January 1, were taking about 30 million cubic feet of gas daily from the field. Renewal of the allowable was sought and a temporary permit was granted for 50 million cubic feet daily effective January 4.

Following the order revoking the allowable, Hunt filed a request with the conservation commission for a public hearing on production allowables.

Report on Southeast

A report on the sequence and structure of deep, potential oil-bearing rocks of Alabama, Georgia and north Florida has been prepared by the U. S. Geological Survey as Chart 26 of the Oil and Gas Investigations series and is being made available at 90 cents a copy.

The chart, in three sheets, shows the complete geologic history of potential beds in five stratigraphic cross sections, five structure sections, three paleogeographic maps, two structure-contour maps and a thickness map, together with a list of well localities, etc.

Senate Refuses to Delay Big Inch Sale, House Move Loses Some of Its Force

A House move to hold up disposition of the Big Inch pipe lines for at least another 30 days lost much of its force last week when the Senate Armed Services Committee by a 6-1 vote refused to approve a 90-day delay sought by Senators Joseph C. O'Mahoney of Wyoming and Chapman Revercomb of West Virginia.

The Senate committee acted while the House Interstate and Foreign Commerce Committee was in the midst of hearings on a resolution to hold up action until six months after the receipt of FPC's natural gas investigation report.

Representative Francis E. Walter of Pennsylvania, author of the measure, urged delay on the ground that use of the lines for gas would take away the very heart of the Pennsylvania anthracite market, resulting in great loss of employment to miners, railroad workers and local coal dealers.

War Assets Administrator Robert M. Littlejohn asked acceptance of his report recommending sale for either oil or gas, or both, but said he personally had no objection to a 30-day delay, although a longer deferment would mean increased loss to the government because of the $60,000 a month maintenance cost and $10,000 a day depreciation.

Natural Solution

Littlejohn said that he believes the lines will be used for both oil and gas "and that as time goes on the problem will solve itself naturally."

Walter's delaying suggestion lost all of its potency when FPC Chairman Nelson Lee Smith testified that it probably would be six months before the commission is ready to send its report to Congress and, further, that there would be no recommendations on the possible use of the Big Inch lines. The only things in the report of value to Congress in acting on the use of the lines, Smith said, will be material relating to gas reserves and availability and markets.

Smith pointed out that the commission did not feel it should take a position or participate in any deliberations relating to disposition of the lines because, if they are to be used for natural gas, it will later have to pass on an application for a certificate.

Walter declared Pennsylvania authorities will not relax restrictions on easements granted the lines, limiting use to petroleum and by-products, and predicted that any purchaser designing to use them for natural gas would become involved in litigation. Littlejohn, questioned on that point, said it was clearly defined in the call for bids that a gas purchaser would have to take his chances with Pennsylvania, but said he did not believe that would deter any bidders and that he was sure an acceptable bid will be received next month.

Bidders Want Action

The Pennsylvania Congressman argued that use of the lines for gas would displace some 6 million tons of coal a year, but in other quarters it was pointed out that that is only about 10 percent of the anthracite production and the coal displaced would not all be anthracite.

Spokesmen for prospective bidders for the lines opposed any further delay in their disposal. It was contended that the government is protected by provisions of the Surplus Property Disposal Act, requiring Department of Justice review of any sale from the antitrust angle, and it is also expected that once gas is introduced in the New York-Philadelphia area, competing pipe lines will be built. There already is one such application before the FPC from the Trans-Continental Gas Pipe Line Company.

The commitee was warned that if there are more delays in disposing of the lines some of the bidders, particularly independents, may have to drop out and the bids from others will be lower to the extent, at least, of the costs incurred and the continued depreciation of the facilities.

A protest against the granting of construction authority for a natural gas pipe line from Texas to the East Coast to Trans-Continental Gas Pipe Line Company pending sale of the Big Inch systems was filed with the FPC by Big Inch Natural Gas Transmission Company which will be a bidder for the government lines when proposals are opened February 10.

The petition asserted that prior approval of the Trans-Continental Company should prove the high bidder for the Big Inch lines and might make it more difficult for the WAA to sell the lines or get as large an offer as would otherwise be possible.

Acceptance Filed

Michigan-Wisconsin Pipe Line Company has filed acceptance with FPC of the commission's certificate of convenience and necessity issued November 30 authorizing Michigan-Wisconsin to construct and operate a $52.5 million natural gas transmission system from Texas to Michigan. FPC's certificate was issued subject to compliance by Michigan-Wisconsin and others of the conditions specified in the order.

Pipe line facilities authorized include 1069 miles of 22 and 26-inch natural gas transmission line from Hansford County, Texas Panhandle, to the Austin storage field near Big Rapids, Mich.; two compressor stations, one in Hansford County and the other near Mt. Pleasant, Iowa; and a branch transmission line to Wisconsin and various lateral lines.

FPC Staff Recommends Company Service Areas

Making good on its promise that the industry would have an opportunity to criticize its natural gas report to Congress, the Federal Power Commission has distributed copies of recommendations of its staff for the relaxation of controls over improvements and extensions of facilities.

Interested parties have until February 15 to submit their reactions to a proposal that determination by the commission of "service areas," within which a natural gas company may enlarge or extend its facilities to meet increased demand may be exercised by adoption of a general rule rather than by hearing and acting upon individual applications.

The commission experts held that delineation of service areas for individual companies on a geographical basis involving new markets is not desirable nor feasible, but that companies should be permitted to provide additional facilities not involving increased delivery capacity to improve service to customers and also to enlarge facilities within prescribed limits to meet increased demand in markets served. However, facilities of an incidental character required to extend service to various new customers, involving additional loads not exceeding 50,000 cubic feet per day in each instance, also would be included under the proposed rule.

The report proposed that such permission as to enlargement of facilities under the service area provisions of the Natural Gas Act be limited to an additional 10 percent of the system capacity of a company in any calendar year.

Pressure-Maintenance Plants for Texas Fields

Permission to operate pressure-maintenance plants in the East, Guerra, and Yturria fields of Jim Hogg and Starr counties, was requested by Sun Oil Company at hearings before the Texas Railroad Commission last week. Under the proposals, all casinghead gas produced in these fields would be gathered and returned to the producing horizon.

The plant contemplated for the East field would have a capacity of 1,375,000 cubic feet daily with initial injection volume of 500,000 feet. At Guerra field, 285,000 cubic feet of casinghead produced would be injected through a plant of 800,000-foot capacity. Under the Yturria field proposal, the present casinghead production of 400,000 to 500,000 cubic feet daily would be injected through a plant 1,400,000-foot capacity.

Tennessee Gas Projects Are Proposed Before FPC

Application for construction of facilities to make natural gas available to the Chattanooga and Knoxville, Tenn., areas has been filed with the Federal Power Commission by Tennessee Natural Gas Lines, Inc.

The company, holding a contract with Tennessee Gas and Transmission Com-

pany for gas, proposes a 181-mile 16-inch transmission line from the TGT line to Chattanooga, and a 106-mile 12¾-inch line from that point to Knoxville. At the point of interconnection the line would have a capacity of 62,325,000 cubic feet a day and would be able to deliver about 14,108,000 cubic feet at the Knoxville end after service to other markets.

Tennessee also is asking that the portion of an application of Southern Natural Gas Company relating to the construction of facilities to furnish natural gas to the Chattanooga market be severed from the remainder of the application and suspended until the Tennessee Railroad and Public Utilities Commission determines all matters of local policy and public interest.

Increased Gas Supply for Denver Sought in Projects

A joint application has been filed with the FPC by Colorado Interstate Gas Company and Canadian River Gas Company setting forth alternate plans for providing increased gas supply for the city of Denver. Under one plan, Colorado would build approximately 207 miles of 20-inch pipe line from Denver to Holly Junction, Colo., with 16-inch lines from that point running, respectively, to the Hugoton gas field in Kansas and to the Oklahoma-Texas boundary and Canadian would build approximately 60 miles of 16-inch line from the Oklahoma-Texas boundary to the Bivins compressor station in Moore County, Texas, providing a capacity of 84 million cubic feet per day which, by extension and additional horsepower at the Hugton field, could be increased to 125 million cubic feet daily, and by further extensions an ultimate maximum capacity of 179 million cubic feet could be achieved.

If Colorado is unable to obtain a satisfactory gas supply in the Hugoton field, it is proposed to build approximately 268 miles of 20-inch line from Denver to the Oklahoma-Texas boundary, with three compressor stations, and Canadian will build approximately 68 miles of 16-inch line from the boundary to the Bivins compressor station, providing an increased capacity of 84 million cubic feet daily which, by subsequent construction of additional horsepower in the field station and the three line compressor stations, could be expanded to approximately the ultimate capacity contemplated in the first plan.

Sunray Completion

The Sunray Oil Corporation has completed construction of 12 miles of 4-inch crude pipe line which runs from the company's newly-developed Albright pool, four miles east of Holdenville, to the Greenleaf pump station, where it will connect with a line to Sunray's refinery at Allen. The new line will give Sunray a network of 175 miles of pipeline in the fields surrounding the refinery.

Owen Stephens has been transferred from Allen to Holdenville, to handle gauging operations for the new pipeline.

THE OIL MAN'S CALENDAR

MAR. 8– 9	Mid-Year Meeting of Directors, Independent Petroleum Association of America, Jackson, Miss.
17–19	AIME World Conference on Mineral Resources, New York, Waldorf-Astoria Hotel.
20–22	AIME 75th Anniversary Celebration and Annual Meeting, New York, Waldorf-Astoria Hotel.
24–27	Annual Meeting American Association Petroleum Geologists, Society Economic Paleontologists and Mineralogists, Society Exploration Geophysicists, Los Angeles, Biltmore Hotel.
APRIL 7–10	National Association of Corrosion Engineers, Annual Convention, Chicago, Palmer House.
8– 9	Annual Meeting, Texas Producers and Royalty Owners Association, Dallas.
16–18	Southern Gas Association, Biloxi, Miss.
16–18	Eastern District, API Division of Production, Spring Meeting, Pittsburgh, William Penn Hotel.
23–25	Natural Gasoline Association of America, Annual Convention, Dallas, Baker Hotel.
APRIL 30 MAY 1– 2	American Gas Association, Natural Gas Division, Spring Meeting, Chicago, Stevens Hotel.
4– 7	Annual Membership Meeting Petroleum Equipment Suppliers Assn. San Francisco, Mark Hopkins Hotel.
6– 8	Petroleum Industry Electrical Association and Petroleum Electrical Supply Association, Joint Convention, Houston, Rice Hotel.
15–16	Pacific Coast District, API Division of Production, Spring Meeting, Los Angeles, Biltmore Hotel.
22–23	Mid-Continent District, API Division of Production, Spring Meeting, Amarillo, Texas, Herring Hotel.
MAY 12–17	South American Petroleum Congress (ISAP), Lima, Peru.

Nomads Chapter monthly meetings: LOS ANGELES, second Wednesday, Mayfair Hotel. HOUSTON, second Monday, Ye Olde College Inn. NEW YORK, first Monday, Louis Sherry's. TULSA, third Wednesday, Hotel Tulsa. DALLAS, date not yet fixed.

Refinery Sold

Southland Oils, Inc., new firm affiliated with the Paluxy Asphalt Company, Dallas, has purchased the Mississippi Asphalt & Refining Company's 3500-barrel daily capacity asphalt refinery near Sandersville, Miss., from Rogers Lacy and associates.

Murray Confirmation

The Texas Senate is scheduled to act today on Governor Beauford Jester's appointment of William J. Murray, Jr., of Houston as Railroad Commissioner. Murray's confirmation appears certain.

United Fuel Gas Seeking Permit for 70-Mile Line

An application has been filed by United Fuel Gas Company for authority to construct 70 miles of 20-inch transmission lines in West Virginia at a cost of $2,970,000 to increase by approximately 41 million cubic feet per day the capacity of its existing facilities in the Pittsburgh area.

Drake and Palmer Are Named to U. S. Council

Colonel J. F. Drake, president of Gulf Oil Corporation, Pittsburgh and Thomas W. Palmer, counsel of Standard Oil Company (New Jersey), New York, have been named to membership in the United States section of the Inter-American Council of Commerce and Production which will send a delegation to the third plenary session of the council meeting at Montevideo, Uruguay, April 8.

The Montevideo meeting will provide the first postwar opportunity for private enterprise of North and Latin America to exchange views on mutual business problems, it was declared by William K. Jackson, president of the United States Chamber of Commerce, vice chairman U. S. section of the council.

Landmen Organize

The Houston Landmen's Association organized last week with membership limited to professional landmen employed by oil, gas, or sulphur companies headquartering in Houston. This will include landmen, field title men working under the direct supervision of the land department, and supervising heads of district, division or company-wide title and rental-record departments whose work is under the direct supervision of the land department. Luncheons will be held each Monday.

Officers are H. D. Henderson, Sohio Petroleum Company, president; J. Eric Beall, Gulf Oil Corporation, vice president; J. E. Suttles, Union Oil Company of California, secretary, and H. R. Kuester, Standard Oil Company of Texas, treasurer.

Gas Conservation Order

The Texas Railroad Commission last week cracked down on gas waste in Goldsmith, North Cowden, and Seminole. Operators whose wells in those fields are connected to gasoline plants were ordered to adjust their production time to a schedule prepared by the gasoline plant, this to maintain a constant flow of gas to the plant and to eliminate venting residue gas.

Meanwhile, the commission scheduled in Kilgore a meeting to determine what punishment might be meted out to offending producers who failed to cooperate on gasoline plant operations there.

In its new order the commission reaffirmed its determination to eliminate waste of casinghead gas wherever possible.

ILO Representatives

Representing the U. S. oil industry at the 12-nation conference of the International Labor Organization's Petroleum Committee in Los Angeles February 3-12 will be James C. Tanham, vice president, The Texas Company, and Charles E. Shaw, manager of industrial relations in foreign operations, Standard Oil Company (New Jersey).

Up for discussion will be the position of oil workers outside the United States.

Corrosion Problems In High-Pressure Distillate Wells

Field line ruptured after severe corroding.

By RALPH L. HOCK
Production Engineer, Cotton Valley Operators Committee

DURING the past few years corrosion in high-pressure distillate wells has presented a new operating and economic problem for organizations producing from high pressure distillate reservoirs The Cotton Valley Operators Committee has investigated the economic importance of corrosion in the Cotton Valley field, analyzed the economic aspects and studied the economic viewpoint which indicated the reasonable amount of research, testing, and field work necessary to combat this type of corrosion. The results of this were given in a previous report, "Corrosion Costs—High Pressure Distillate Wells."[1] Conclusions presented as a result of these studies were: (1) the average known cost of corrosion at present is $0.47327 per MMcf of gas produced; (2) the insurance value of eliminating, or reducing, corrosion is an important, intangible quantity; (3) reduced productive efficiency of leaky tubing strings, and production lost through ruptured equipment adds an indeterminate cost. In the following table the cost of corrosion is broken down into six main categories to show the types of costs directly involved.

Known Corrosion Costs

Type of Cost	Percent
Well Workovers	66.19
Field Crew Labor on Surface Equipment	8.93
Surface Equipment Costs	9.09
Welding Costs	6.76
Surveys for Corrosion	3.18
Corrosion Research	5.87
TOTAL	100.00

Fortunately, this organization has not had the expense of combating wells which have corroded through the casing. It is known that several companies in other fields have already expended hundreds of thousands of dollars in combating wells which have corroded through the production string of casing.

From a practical operating viewpoint, there are many ways in which corrosion can be detected before wells and lines get out from under control or other serious damage is done. Some of the methods followed in the Cotton Valley field for detection of corrosion are as follows:

1. During regular field work it is customary to inspect the field lines, tubing, valves or equipment for corrosion as they are being changed, or worked upon. Experience has taught the field men which points and places are most likely to be attacked, thus aiding in detection.

2. Line walkers are used to continually patrol the pipe lines, checking junctions, Christmas trees, and pipe line equipment.

3. Well checkers, whose principal function is regulating flow of wells, check every regular producing well at least twice a day for small leaks and report them when found.

4. Visual examination and checks of meter runs, flow lines, and equipment are made periodically by the welder and field crews by cutting them open for inspection where practical.

Some methods followed by the Cotton Valley field Operators Committee and others in detecting and controlling corrosion.

5. Penetron survey has been made on all regular producing wells, some of the expansion bends, gathering system junctions, and injection system loops. This type of survey permits inspection of lines without having to cut them open and allows normal operation of the lines while being tested.

6. Electrical surveys to determine need for insulating wells from flow lines.

7. Use of tubing calipers.

These provide the general procedures for detection of corrosion. Others are improvised as needed.

Once corrosion is detected there are several ways and means of repairing damage done by alleviating the rate of corrosion. Field crews locate and replace corroded portions of lines or equipment as the need arises. Corrosion in high-pressure gas gathering lines has been found to occur mainly along the bottom of the inside of the line, thus these pipes can be rotated 90 degrees, or 180 degrees to prevent excessive corrosion at one point in the pipe. In general, double extra heavy pipe is placed at points which are most likely to be corroded.

A method of attack recently instituted at Cotton Valley is the insulation of Christmas trees from their flow lines. It has been found that electric currents are flowing into, or out of, most wells. The magnitude of these is reflected in Table 1.

Accompanying this report is a diagram, "Schematic Diagram of Electrolysis of Christmas Tree and Piping," (Figure 1), which illustrates the field method of tests for electrical currents. In the case illustrated the casing is being damaged. It is electrochemically possible for one ampere flowing between pipe and soil to carry away 2.30 pounds of iron

Presented before the NGAA Corrosion Research Project Committee, Oct. 17, 1946. Baker Hotel, Dallas.

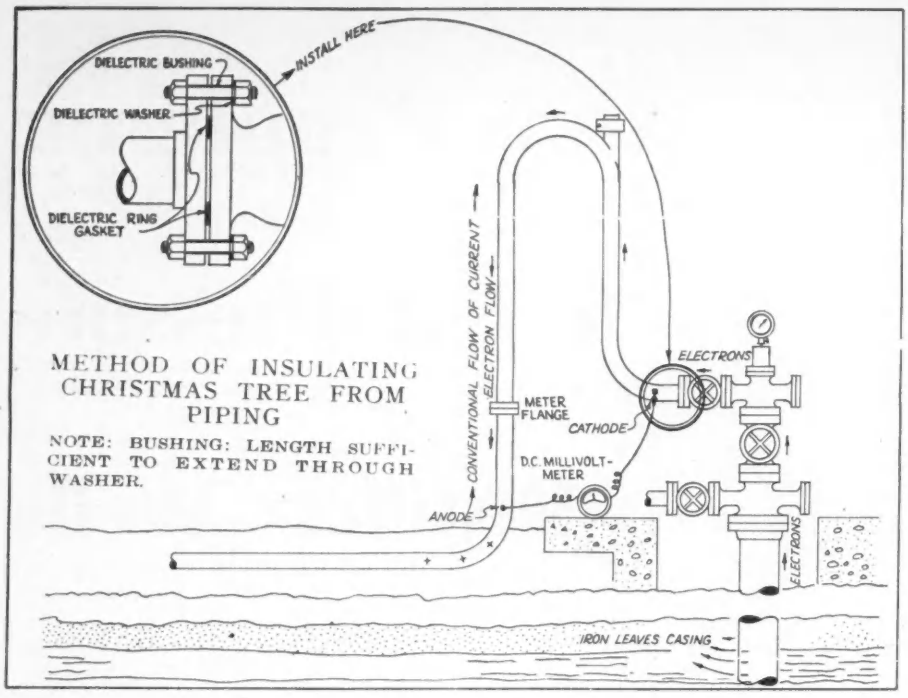


Figure 1. Shematic diagram of electrolysis of Christmas tree and piping.

per 1000 ampere hours. Actually, the efficiency of any electrolysis would be very low, probably less than 10 percent. However, it can readily be seen that a constant current flow could carry away a lot of pipe metal.

The field test for detection of current flow is performed through the use of a volt meter. The theory of insulating wells from their flow lines is similar to cathodic protection of ordinary pipe lines, that is, stopping the flow of current. Possibly, electrolysis has been causing some corrosion where chemical action was being blamed.

F. A. Prange, Phillips Petroleum Company, brought out an interesting point in a report, "Corrosion of Tubing by Inhibited Acid," as presented at the NGAA Corrosion Committee Meeting, June 27, 1946, that some corrosion was due to poor inhibition of acid being utilized to acidize a well.

At present, sodium chromate is being injected into one well to reduce its corrosive characteristics. Results obtained show that sodium chromate solution (approximately five pounds per 100 gallons of water) injected at the rate of 75 gallons per day is able to reduce corrosion effectively. From a practical standpoint, however, it is doubtful whether present methods of injecting chromate by the use of mechanical pumps would be economically justified in the Cotton Valley field. There is a lot of labor and equipment cost incidental to mechanical injection. Perhaps gravity type injectors, which are now being tried, will help this situation. The cost of sodium chromate, approximately 17 cents per pound, is reasonable.

Naphthenic acid is now being field tested by injection into two wells. Fifteen gallons of solution (one part by volume naphthenic acid and 19 parts mineral seal oil) are injected daily. Cost of the naphthenic acid is about 90 cents per gallon; mineral seal oil is obtained from the C.V.O.C. plant where it is regularly extracted from the field's production. Theoretical, practical, and economical considerations point toward it being the best for this field. Preliminary checks indicate that this treatment has reduced corrosion in one well to a negligible value and in the other by 50 percent. However, at this stage of the tests it is too early to draw definite conclusions. A picture of the simple, but effective, gravity type lubricator used for injection is included with the report. The solution is injected into the casing and produced through the tubing.

There are numerous other inhibitors which have been tried, some successfully, in other fields. Some practical points considered in selection of inhibitors:

1. Some chemicals might plug the tubing, or casing, through vaporization of solution water or chemical action. This sometimes happens with the various sodium compounds. Of course, the quantities required is an important point.

2. While a chemical might retard corrosion in the wells and flow lines, it might be harmful to a cycling plant. An example is the use of ammonia which can be detrimental to Admiralty metal tubes, or formaldehyde which gums up and/or polymerizes in propane chillers.

3. The occurrence of some inhibitors in products sold from a gas-distillate well will reduce their value, or sale. An example of this is sulphur compounds.

It has been found through experience

TABLE 1

Electrical Current Tests of Lines Connected to Gas Condensate Wells

Well Name	Nominal Diam. of Pipe Tested	Electrical Polarity of Well	Calc. Current in Amps.
Gray a/c 2 No. 1			
Test 1	4.50	Negative	3.08
Test 2	4.50	Negative	3.03
Stewart No. 4	4.50	Negative	0.73
Hodges A-2			
Closed in	4.50	Negative	0.82
Flowing	4.50	Negative	0.67
Pardee No. 3	4.50	Negative	2.73
Grant Wadley No. 1	4.50	Negative	1.24
Coyle-Tiner No. 1	4.50	Negative	0.45

Effect of Production Rate on Corrosion Indicated by Coupon Tests

Well Name	Average Daily Production Rate (MCF)	Coupon Corrosion (Inches Per Year)
Fred-Banks No. 2	4,135	.00831
Coffee No. 1	6,522	.01276
Davis No. 2	6,056	.00963
Glass No. 1	4,048	.00735
Gleason No. 1	6,325	.01021
Grant No. 1	5,511	.01058
Grant Wadley No. 1	4,462	.00853
Gray No. 1	4,852	.00985
Hodges A-2	1,157	.00179
Pardee No. 2	3,836	.00940

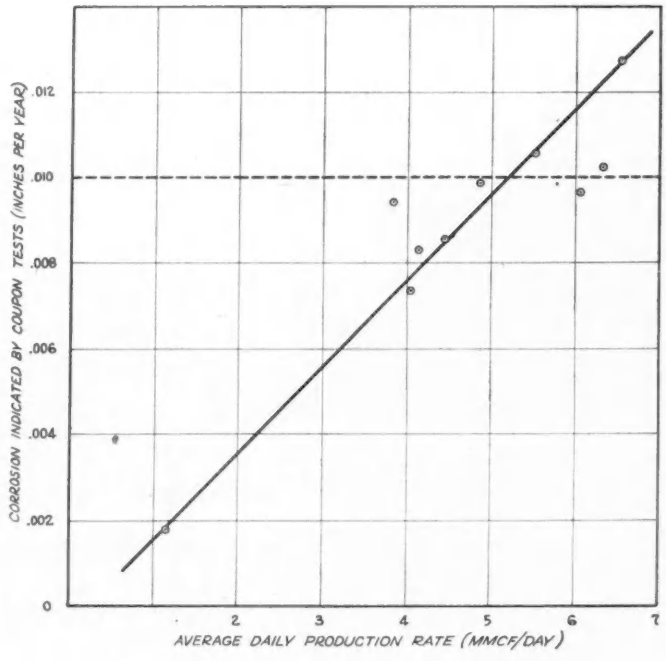


Figure 2. Effect of production rate on corrosion indicated by coupon tests. (Wells showing more than 0.010 indicated per year corrosion are considered dangerous).

Piping arrangement on gravity-type lubricator.

Corrosion coupons are located at top of meter loop. Inserted at coupling.

that the flow rate of a corrosive well has a very important bearing upon its degree of corrosion. In order to correlate flow rate and corrosion, tests were run, the results of which are plotted in Figure 2. From this graph it is apparent that any well in the Cotton Valley field which flows above 5 MMcf/day develops an excessive corrosion rate. This should be an important factor for engineers to consider in outlining a development program for a distillate field. No development program should be planned wherein a well would be required to flow at a rate which would cause excessive corrosion. How each operator will determine this point is another problem. Dual well completions, or production from more than one sand at a time through the same Christmas tree also complicates the problem. Wells in the Cotton Valley field produce only from one sand and through 2½-inch tubing.

It has also been found that a corrosive Bodcaw sand (located in the Cotton Valley series, Upper Jurassic age) well will produce about 4200 MMcf of gas before it required a workover job to replace badly corroded tubing. Not all wells require this, however. An extensive program is being carried out to classify each regular producing well as to its degree of corrosiveness and possibly correlate that with its production history.

A very interesting theory has been proposed that increased corrosion at high flow rates, and after large cumulative production, is partially due to the passage of the gas-distillate through a dry sand around the bore hole causing the gas-distillate to be partially dehydrated and catalyzed. The report, "Phase Relations of Hydrocarbon-Water Systems," by John J. McKetta and Donald L. Katz, as presented at the AIME Fall Meeting, October 3-4-5, 1946, contains a curve, "The Effect of Pressure and Temperatures on the Water Content of Natural Gases with Gravity to 0.7-inch," which further substantiates this theory. The higher the well flow rate the greater the pressure drop around the well bore and consequently the greater the dehydration of the sand and unsaturation of the gas. An apparent contradiction to this theory is that some wells which produce a high percentage of salt water with the gas-distillate are also corrosive. This effect, however, may possibly be due to chemicals in the water.

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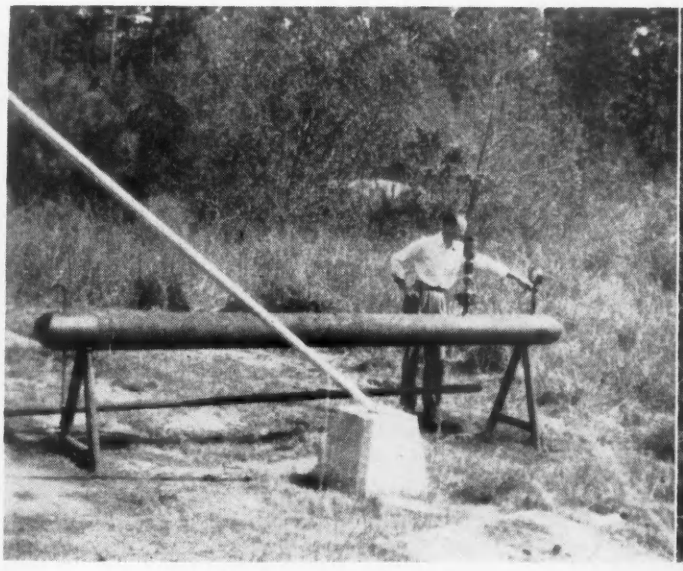

Gravity-type lubricator for injecting naphthenic acid-mineral seal oil.

Flow line, three-inch XH pipe, containing corrosion coupons for tests by NGAA and The University of Texas.

CONTROLLED *Directional* DRILLING OF WELLS

Part 2 (Conclusion)

By G. L. KOTHNY

Vice President, Sperry-Sun Well Surveying Company

THE principal types of tools used in directional drilling:

A. The Whipstock.

This is a wedge-shaped steel casting with a tapered or concave guide channel for the bit (Figure 15). To prevent turning, means are provided to anchor it. Whipstocks are of the permanent or removable type. The permanent whipstock remains in the hole. It was used in the early days of directional drilling, and today is used only in cased holes. Experience has taught drillers that circulation and drilling operation may be in open holes loosen a permanently set whipstock and cause it to drop in the new hole, which may result in a costly fishing job or the loss of the new hole. Removable whipstocks are now used exclusively in open holes.

The removable whipstock is provided with a collar on top, which is used for withdrawing it from the hole. The collar has provisions for screwing into it a shear pin of about one inch diameter by means of which the whipstock is attached to the bit on the end of the drill string when being lowered into the hole, (Figure 16). Above the bit, a single or double of 3½-inch drill pipe is arranged to provide flexibility. After reaching the bottom and orienting the whipstock into the desired direction, sufficient weight (about 20,000 pounds) is applied to force the chisel-poined lower end of the whipstock into the formation, securing it against rotation and finally breaking the shear pin. Bit and drill pipe are now free to move downward and to rotate. The rotation is usually slower, 30 to 50 revolutions per minute, and little weight, about 2000 to 3000 pounds, is applied until the bit reaches the bottom of the original hole. At this point, the weight is increased and 10 to 15 feet of rat hole made with the same speed. A directional single-shot record is then made to obtain the inclination and direction of the new hole. If the direction and inclination are as desired, the rat hole is then enlarged in the following-up run and any further operations are determined by taking into consideration prevailing conditions.

Whipstocks are used mostly in hard formations or inside of casing. They should not be used in soft formations and particularly not in formations where heaving conditions exist. The deflection angle obtained by the use of a whipstock varies from 1½ to 2½°.

B. Knuckle Joints.

The knuckle joint (Figure 17) is basically a pilot reamer with a universal joint principle built into it to connect with the drill stem. The ball-and-socket joint enables the lower drilling assembly, consisting of bit and reamer commonly referred to as a stringer, to rotate at a different angle from the drill stem, thus changing the drift and direction of the hole. When the ball-and-socket joint enters the new hole, the knuckle straightens and the drill pipe takes care of the curvature necessary for continuing the hole in the new direction.

This tool likewise has to be oriented in the desired direction and set on bottom in this position. The tool is spudded up and down to form a recess for the bit. When no more progress can be made by setting down, weight of 8000 to 10,000 pounds is applied, the tool is set, and rotation is started at 20 to 40 rpm with steady circulation. Drilling is continued until 15 to 20 feet of hole have been made. Care must be exercised regarding applying correct pump pressures. These will vary in different formations. In sticky shale the pump pressure should be high to keep the tool from balling up. While getting off a cement plug, pump pressure should be kept low to prevent washing away of the cement.

As with the whipstock, the inclination as well as direction of the rat hole is checked with the directional single-shot and if these are satisfactory the rat hole is reamed to gauge and about 20 feet of additional follow-up hole are drilled.

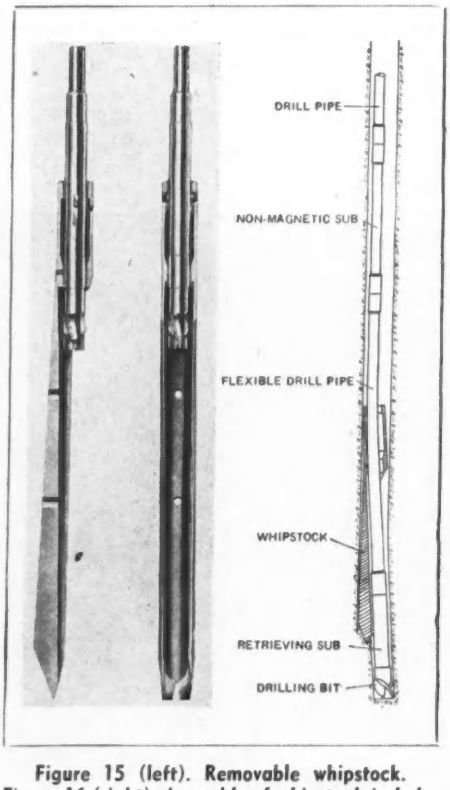

Figure 15 (left). Removable whipstock.
Figure 16 (right). Assembly of whipstock in hole.
Courtesy International Nickel Company

Modern types of knuckle joints which drill full gauge holes (Figure 17) do not require the reaming of the hole.

In operating the knuckle joint it is important to maintain proper weight and to keep the tool cutting or biting into the formation, for if this action slows up, the tool has a tendency to crawl around the hole and follow the course of least resistance. Applying weight is the only means of holding the tool in the desired direction. The knuckle joint gives a greater deviation as the deflection takes place in a distance equal to the length of the tool. The deviation varies with the formation and the manner in which the tool is being operated. The knuckle joint is used mostly in soft formation.

C. Spudding Bits.

These are shovel-like forgings with a circulation passage through the center. They are used only in soft and unconsolidated formations such as sands and soft to medium shales where the combination of spudding up and down and the jet action of the drilling mud are capable of making only a few feet to start the hole off in the desired direction.

Two principal types are used: the straight spudding bit which only starts the deflected hole by spudding; and the combination spudding and rotating bit, which is rotated after spudding.

The first is operated as follows:

The bit is oriented, like the whipstock or knuckle joint, torque is removed from the pipe, and the rotary table is locked. The bit is then set on the bottom, mud circulation at fairly high pressure is started, and the bit is spudded, applying from 10,000 to 20,000 pounds of weight. The jet action of the mud upon the curved face of the bit produces a washing action of the bit, which allows the bit to slide off in its direction.

After two or three feet of hole have been made, the spudding bit is removed and the deflection is completed by making a follow-up run of 15 to 20 feet with a rotary bit about three-fourths the diameter of the original hole on a joint of very flexible drill pipe, while applying weight. The smaller bit, upon reaching the depression created by the spudding bit, causes the flexible drill pipe to form a bow towards the side of the hole opposite the depression, thereby adding to the deflection of the hole. The rat hole is then reamed to full gauge with a pilot bit.

The second type combination spudding and rotating bit is shown in Figure 18. Its structure and operation differ from the first. After spudding one to four feet, the combination bit is rotated and drills ahead for a short distance. Then it is reoriented in the same direction and the process is repeated until the desired course of deflection has been obtained.

D. Non-Magnetic Drill Collars

One of the advances in controlled directional drilling is the development of the non-magnetic drill collar, which made its appearance about 21 months ago. This drill collar is shown in Figure 19. It is made of K-monel metal, which is non-magnetic and corrosion resistant. It has physical characteristics of the same order as those of the highest grade of steel.

With the use of this type of tool the disadvantages common to the use of magnetic directional single-shot instruments are side-stepped. Considerable rig time is saved when taking directional single-shot records, since it is unnecessary to remove the drill pipe from the hole, nor is it necessary to raise the drill pipe to allow the single-shot instrument to dangle through a specially designed bit. The most efficient conventional type of bits can be used.

The non-magnetic drill collar is located directly above the drilling bit. It is of sufficient length to bring the recording compass of the single-shot instrument out of the influence of the permanent magnetism of the drilling equipment. Its use assures more accurate recording, since the instrument is always in alignment with the drill collar, which protects it against loss or damage.

In addition to the four principal types of tools mentioned above, there are numerous types of special bits and various tool assemblies employed when drilling conditions make them necessary.

The latest developments are tools that eliminate the necessity of reaming rat holes, saving considerable rig time by not having to make a round trip with the drill pipe. These tools are known as "full gauge" deflecting tools and with them holes but slightly smaller than the original hole are drilled, making it possible to follow the lead hole with a conventional drilling setup and a standard size bit.

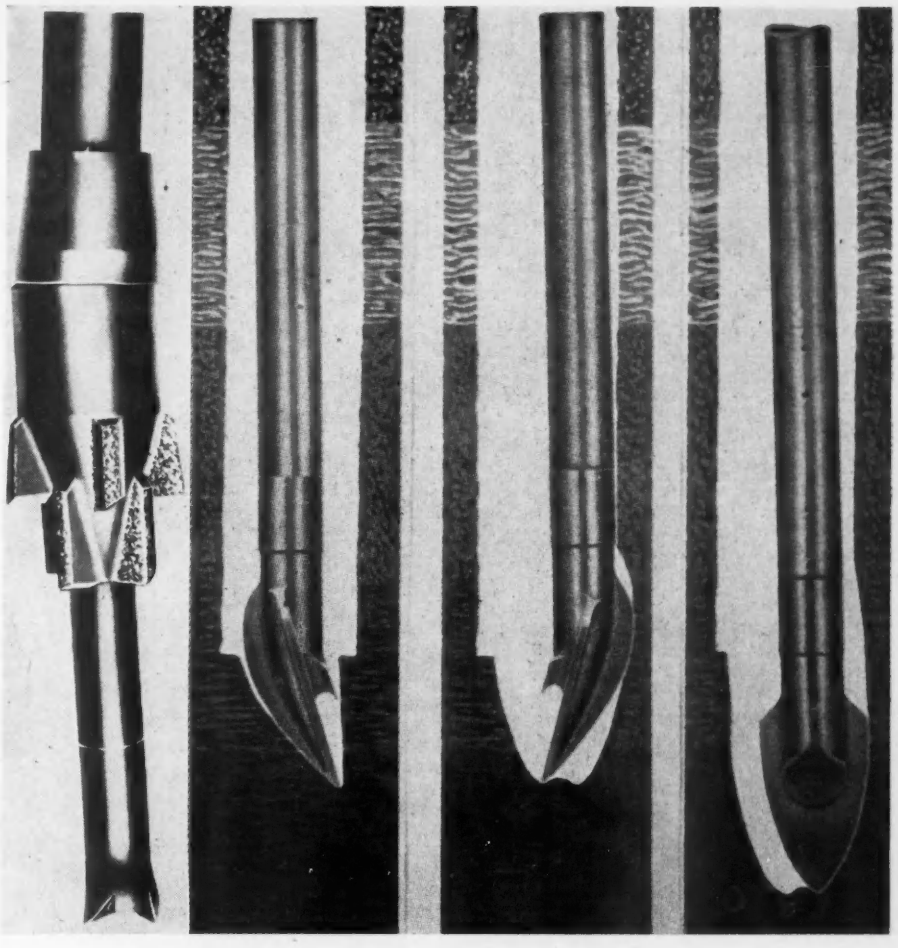

Figure 17 (left). Knuckle joint. Figure 18 (right). Spudding bit.

Technique

In most controlled directional operations, attention must be paid to completing the well as close as possible to the predetermined point and to do this in such a manner that the changes of direction and inclination are smooth, in order to avoid trouble in running casing and wear of rods and tubing after the completed well goes on the pump.

The average approach to the chosen objective point should not be more than 3° per hundred feet. The factors which require due consideration in planning the controlled course of the hole are:

The condition of the hole.

The direction and the angle of the hole, which are obtained from a directional multishot survey.

The horizontal displacement and the footage to be drilled of the new hole.

The type of formations which have to be passed through and particularly those in the portion of the hole where started.

the directional controlled drilling is

The plugging level is selected after taking into consideration the position of the old hole relative to the chosen objective point and after determinating the drift angle and direction to reach this point. The point of deflection is usually chosen where the formations are most suitable. Hard formations are sometimes preferred. Deflection at shallow depths is avoided as this may result in keyseating, caused by the drill pipe being pulled through the deflected hole.

When setting a cement plug from which sidetracking operations are being commenced, the length of such plug is approximately 200 feet, in order to add support to the walls until the deflected hole deviates sufficiently to eliminate the hazard of breaking back into the original hole. To have the cement plug set up properly to the walls of the hole, it has become common practice to wash the hole ahead of filling it with cement in order to wear down the mud ring through which the cement will not penetrate. The amount of washing must be limited to prevent caving or the breaking down of the walls. Sometimes a cement plug is set in two stages of 100 feet each, the second cement stage being introduced immediately above the first, and after sufficient time has elapsed for the initial setting of the first cement plug.

The completion of the directional hole should be done with as few settings of deflecting tools as possible. Too great a change in both the angle of inclination and the direction of the hole should be avoided. Attempts should be made to have the new hole in line with its objective before attaining an angle of more than 12° off the vertical. It is preferable to give the hole a natural spiral turn rather than an unnatural reversed turn. The number of deflecting tool settings necessary to attain the desired direction is usually governed by the tendency of the formation to cause the hole to drill in one direction. The increase and decrease of the angle of inclination can be controlled by different types of bits. Drilling bits which cut a concave bottom upon the bore hole will have more of a tendency to increase the angle of inclination than a bit, the gauge cutter of which cuts ahead of the core cutter. The latter type of bit has a tendency to undercut the low side of the hole. If it is desired to increase rapidly the angle of inclination, reamers are used which are usually placed immediately above the bit and the drilling weight is increased to approximately 8,000 to 10,000 pounds, depending upon the formation, with a low volume of mud circulation.

Drill collars are also used for controlling the increase of angles. The longer the drill collar, the slower the increase of angle. It is a well known fact that a drilling bit in the majority of cases drills up structure in low dip formations and down structure in steeply inclined beds. This tendency can be changed with the assistance of the proper deflecting tool.

The technique of controlled directional drilling is not limited to methods involving deflecting tools. It can also be accomplished through weight or mud control, through the use of special bits, various speeds of rotation, or various

arrangements of drilling assemblies. Frequently deflecting tools are used only to give the hole a start in the desired direction, and after this deflection is accomplished, the course of the hole is often controlled with bits, reamers and various amounts of weights and drill collars.

Controlled directional drilling operations are usually handled through service companies who specialize in this kind of drilling and who are equipped with the necessary tools and with engineers and drilling crews who not only have had rotary drilling experience and the ability to supervise regular drilling crews, but also have an understanding of alegbraic and trigonometric functions and specialized training in using deflecting tools under varying well conditions. The closest kind of co-operation between the directional drilling crews and the regular drilling crews and the owner of the well is essential in keeping down the cost of directional drilling jobs.

Each well presents its own individual problem, which can be solved successfully if the actual conditions of the hole are ascertained and if engineers and technicians in co-operation with the drilling crews define the proper technique to handle the operation.

Review

Controlled directional drilling was practiced by the mining industry during the first decade of this century, in the Lace Proprietary Mines and the Brakpan Mine in Transvaal, Africa[3]. Both these holes were diamond drilled holes. The measured depth of the first one was 6656 feet, with a vertical depth of 4939 feet and a horizontal displacement of 3632 feet, the maximum angle of inclination off the vertical being 58°. The diameter of these holes was only 2⅛ inches. Considering the limited equipment and facilities available at that time, the results obtained can be considered as quite a great accomplishment. There are no records in the literature of the early attempts of controlled directional drilling of oil wells; however, it is well known that around 1915 some wells were drilled into the ocean floor at Summerland, near Santa Barbara, Calif.

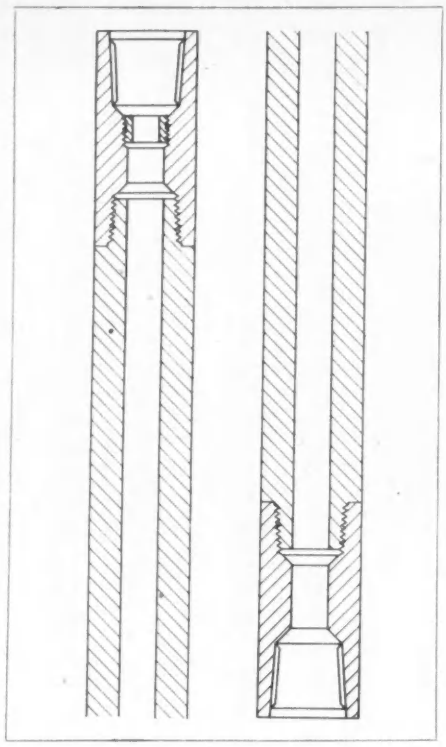

Figure 19. Non-magnetic drill collar.
Courtesy Sperry-Sun Well Surveying Company

When Standard Oil Company of California in 1920 brought in a producing well at Huntington Beach, it was thought that its close proximity to the ocean would indicate an oil field under the ocean, and wells were drilled from Huntington Beach and deflected under the ocean floor.

The science of controlled directional drilling came into vogue about 1929 after the development of accurate and reliable multishot and single-shot surveying instruments, which provided the auxiliary eyes necessary to see through thousands of feet of solid earth. The use of these instruments and the results obtained from multishot surveys showed that in most of the wells surveyed, the lineal measurement of the hole had very little relation to the depth, and that the majority of holes were crooked with an average horizontal displacement from the mouth to the bottom of the hole of 397 feet for holes of 5000-foot depths and about 590 feet for holes of 6000-foot depths. Interest in the drilling of straight holes was stimulated by these disclosures and directional controlled drilling was used to straighten out crooked holes.

At the same time, directional controlled drilling was also used in California for unethical purposes; that is, the intentional crossing of property lines. In the development of the Huntington Beach field, two mystery wells completed in 1930 were considered deeper and yielded more oil than other producers in a field which by that time had to be pumped. The obvious conclusion was that these wells had been deviated and bottomed under the ocean. This was acknowledged in 1932 and drilling was done on town lots not showing commercial production for the asserted purpose of extending the production area of that field by tapping oil reserves beneath the ocean along the beach front (Figure 20).

Many legal tangles developed when, through directional surveys, it was established that oil was being removed from a productive zone under the tidelands, the ownership of which was claimed by both the town of Huntington Beach and the state of California. The latter today supervises the Huntington Beach operation and through this supervision the art of cylinder drilling was developed.

In 1933 during the development of the Signal Hill field at Long Beach, several wells were drilled under the Sunnyside Cemetery from locations across the streets surrounding the cemetery and even from more distant points to tap a productive zone underlying the cemetery.

Controlled directional drilling up to that time received rather unfavorable mention until it was used in a legitimate way in 1934 to kill a wild well in conroe, Texas.[4] This well had blown out and created a crater approximately 170 feet in diameter and of unknown depth which was filled with oil mixed with sand. The oil boiled up constantly and came up at the rate of 6000 barrels per day. A relief well was drilled about 300

Figure 20. Huntington Beach field.

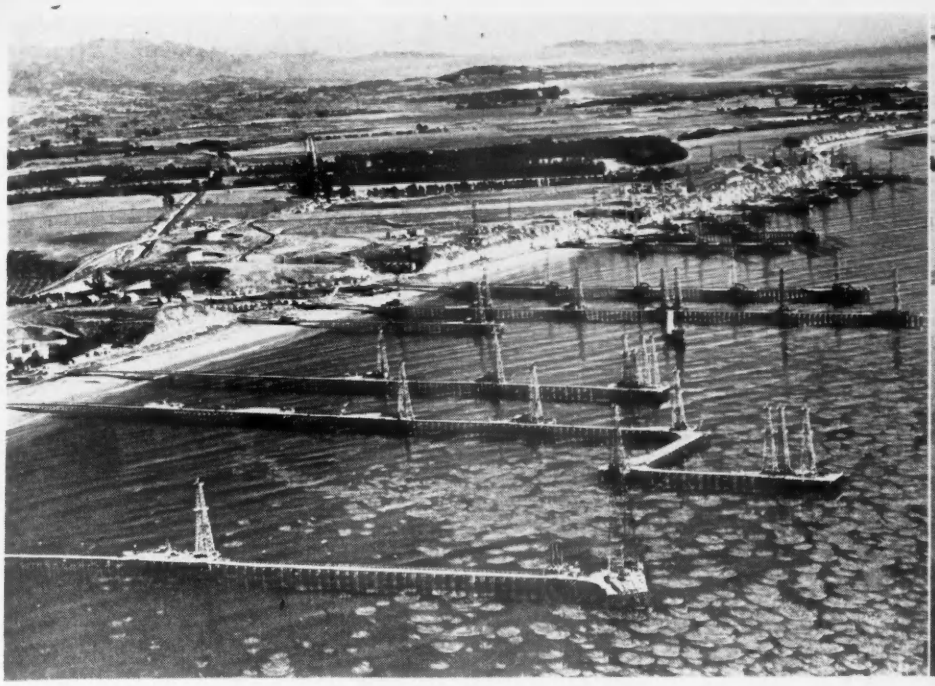

Figure 21. Ellwood field.

Figure 22. Relief well at Laguna Madre.

feet from the crater to the bottom of the well which had blown out and the cratered well was killed by pumping water into the producing formation through the relief well.

The illegitimate application of controlled directional drilling in California was halted in 1935 when the Superior Court of the State of California, in and for the County of Los Angeles, in the case of Alphonso E. Bell Corporation, et al, Plaintiffs, vs. Belleview Oil Syndicate, et al, Defendants, decided that one who drills on oil well on his own land and permits the drill to drift into the lands of another, and with knowledge of the bottom puts the well on production, is liable for trespass and for conversion of the oil taken from the other's land. And further, that the fact that at the time of the drilling of such wells, the facilities and applicances had not been perfected and the knowledge of drilling had not advanced so that directional drilling was an art and the drilling of straight holes was unknown, did not justify an operator in drilling into strange lands at a distance of 1500 feet from the surface location and placing his well on production at that point, notwithstanding the pool produced from extended into the lands of the drilling party. This court decision gave quite an impetus to direction drilling and well surveying.

Great efforts were now made to avoid trespass and controlled directional drilling was used to bring wells which had drifted beyond boundaries back on the lease.

Operators around Sunnyside Cemetery, Signal Hill, tried to get permission to remove the bodies from the cemetery and inter them in a more suitable place so they would be free to drill in the cemetery property. Permission was denied but eventually an agreement was reached between the owners of the cemetery and the operators, permitting the latter to do controlled directional drilling under the cemetery.

During this period, the Ellwood Field[5] which extended under the Pacific Ocean was developed. Controlled directional drilling was used to eliminate the necessity for additional pier construction in order to penetrate the productive zone at proper locations. Three to seven wells were drilled from one location (Figure 21).

Offshore drilling was also started in the Gulf of Mexico where oil was found about a mile below and offshore of Cameron Parish,[6] and in the swamp areas of the Chacahoula Field,[7] where one road served a group of wells arranged on one large pier.

Controlled directional drilling made possible the reclamation of old wells in the Oklahoma City field.[8] In the bottoms of these wells are such accumulations of junk or sand, or the wells are in such bad shape, that it is less expensive to drill new hole by sidetracking than to attempt to clean out the old hole.

On piercement-type domes, controlled directional redrilling has increased the recovery.[9]

Development of the Long Beach Harbor Area[10] was made possible only by controlled directional drilling. Wells in this area have been completed under ship channels which could not be blocked with derricks and rigs, or under buildings such as the Ford and Edison plants.

Cylinder drilling refers to the drilling of a well the course of which is described, and which must be held within a radius of 25 feet of this predetermined course. The course is plotted so as to avoid conflict with existing wells and to provide correct bottom hole spacing.

Cylinder drilling is now widely used in California. Over 200 deflected wells with a footage of over a million feet have been drilled in the Huntington Beach area. About 40 percent of these are cylinder drilled holes. The angles of inclination vary from 30° to 65° off the vertical. More than 25 million barrels of oil have been produced from directionally drilled wells in this field.

Many relief wells to kill cratered blowouts have been control-drilled in various oil producing territories in the U. S. and abroad. One of the most interesting relief well projects involved the killing by Humble Oil & Refining Company of 6-D State, in Laguna Madre (Corpus Christi Bay).[11] This well was 1000 yards offshore and was one of the deepest relief wells ever drilled (Figure 22). The vertical depth of this well was 8683 feet, the horizontal displacement 957 feet, and the bottom-hole-pressure was estimated to be around 5780 pounds per square inch. Water was circulated for nine days, before mud was pumped into the blowout well of sufficient weight to equalize the bottom-hole-pressure and kill the well.

Conclusion

The development of controlled directional drilling has made available many reservoirs of crude which otherwise would have remained irrecoverable. It has also been of great economic value, as it has reduced drilling costs by pointing a more direct route to the oil sand. Important future uses for procuring of further production from existing fields and in the discovery and exploration of new oil sands are indicated and the possibilities of further improving techniques yet in experimental stages in this new and established art will advance the petroleum drilling technology.

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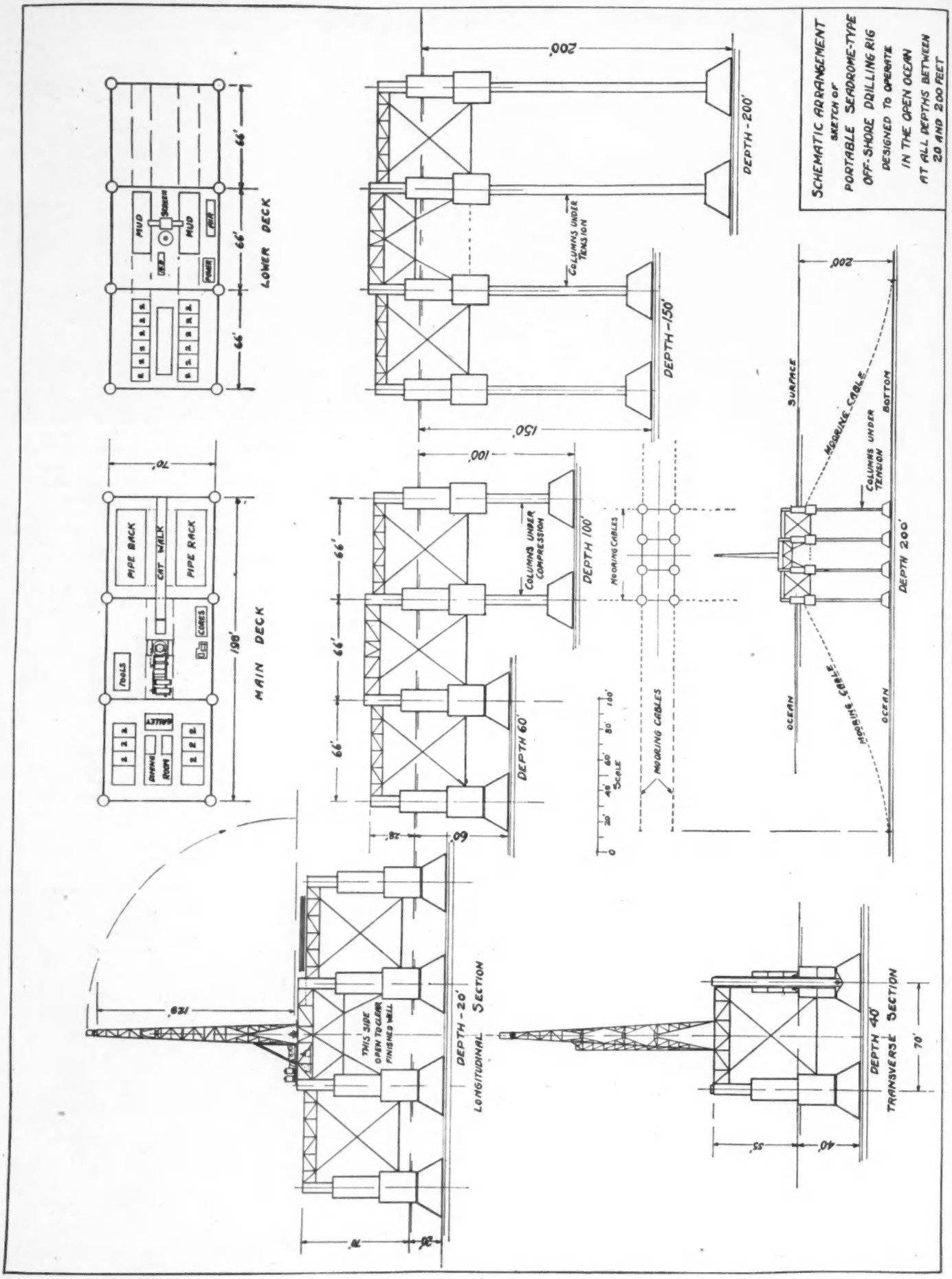

SCHEMATIC ARRANGEMENT
SKETCH OF
PORTABLE SEADROME-TYPE
OFF-SHORE DRILLING RIG
DESIGNED TO OPERATE
IN THE OPEN OCEAN
AT ALL DEPTHS BETWEEN
20 AND 200 FEET
LOWER DECK
MUD
MUD
SCREEN
PUMP
PUMP
MAIN DECK
PIPE BACK
CAT WALK
PIPE RACK
TOOLS
CORES
MAILEY
DINING ROOM
70'
198'
66'
66'
66'
200'
DEPTH - 200'
COLUMNS UNDER TENSION
DEPTH - 150'
150'
100'
COLUMNS UNDER COMPRESSION
DEPTH 100'
MOORING CABLES
DEPTH 60'
60'
28'
SCALE
MOORING CABLES
SURFACE
MOORING CABLE
COLUMNS UNDER TENSION
BOTTOM
DEPTH 200'
OCEAN
OCEAN
MOORING CABLE
124'
THIS SIDE OPEN TO CLEAR FINISHED WELL
DEPTH - 20'
LONGITUDINAL SECTION
DEPTH 40'
TRANSVERSE SECTION
70'
55'
40'

FIGURE 1

Figure 2. Model seadrome under test at Sun Shipbuilding Plant, Chester, Penn.

FIGURE 1

Seadrome-Type Offshore Foundation For Continental Shelf Operations

By EDWARD R. ARMSTRONG

THE importance of petroleum resources under the ocean bed is increasing at an ever-rising tempo and it may well be that in the not far-distant future, this undersea oil will be our chief source of supply. Our land resources, at best only a small percentage of the world total are, in a relative sense, being rapidly exhausted while those underneath the ocean have scarcely been touched. Hence, a forward-looking industry should be considering ways and means and developing equipment and methods required to make the recovery of petroleum from this source both practical and economical. In the relatively near future we must anticipate drilling operations 20 to 60 or more miles offshore and at depths in excess of 200 feet.

The drilling rig I have designed will make possible oil exploration and recovery at depths hitherto impossible to reach. The general arrangement of the design proposed is shown in Figure 1. The practicability of this design has been determined by extensive quantitative tests with different models equipped with SR4 electric strain gauges (see Figure 2), in winds and waves considerably exceeding in relative velocities and heights any that would be experienced by such structures while serving as bases for drilling operations in the open ocean.

Portability Vital

In considering the basic requirements of drilling equipment designed to operate in the open ocean, it is of primary importance that such apparatus be capable of being used in accordance with the standard methods and equipment now in effect in land operations, with the added important advantage of portability, coupled with seaworthiness. Also, due to the fact that all preliminary exploration must be conducted under the handicap of ocean conditions, wildcatting will be even more precarious than in comparable land-based operations, making the portability of such a rig a matter of economic necessity.

It is essential that a portable rig be buoyant so that it can be readily moved from one location to another. Although, in an offshore area such as the Gulf of Mexico, where gales frequently reach hurricane force, whipping up short, high seas of tremendous energy, seaworthiness, and all that the word implies, is of even greater importance than portability. Therefore, to insure the desired portability and seaworthiness in this type of rig, it must not only float, but must be of such strength and form that it will be unaffected by wind and waves while on service duty. This means that when the rig is floating it must have ample stability, capable of meeting all sea conditions without danger and be equally safe when resting on the ocean bottom. Further, it would appear desirable that when serving as a drilling base, the structural weight resting on the bottom should be variable within wide limits. (In many locations the safe load-carrying capacity of the ocean floor may vary considerably, with the result that if the loading value could not be reduced, settlement would result—with possible disastrous effects on the drilling operation.) It is also necessary to be able to selectively adjust the vertical trim, or levelness, of the drilling rig to compensate for possible irregularities in the ocean bottom. Means must also be provided to make reflotation of the rig easy and reliable and to insure ample structural stability during all phases of the operation.

Experiments have demonstrated that an openwork structure with a multiple buoyancy system would give the desired

• CONTINUED ON PAGE 48

Rex Field Engineer

Balanced for Better Rotary Drives

Balanced design is the secret behind the ability of Rex Chabelco Oil Field Chains to operate more efficiently and last far longer. For example, while the precision-formed holes for the pins and bushings are of different size, the strength of each end of the side bar is balanced against that of the other. Thus strength for strength, in the side bars, pins and bushings Rex gives you the balanced design that saves weight, adds efficiency and promotes long life. It's one of the reasons why Rex Chabelco Chains have the strength to handle modern drilling . . . why they wear evenly . . . why they do not get sloppy or develop poor sprocket fits.

Rex Chabelco Chains have other equally outstanding design features. Built-in lubrication system assures adequate lubrication of all working parts. Heavy force fit assembly of all parts assures a link that stays put.

For all the facts and for application assistance, see the Rex Field Engineer or write Chain Belt Company, 1639 W. Bruce St., Milwaukee 4, Wis. Rex Oil Field Chains are for sale in all oil fields.

REX Oil Field Chains

the chains that have grown up with the oil fields

CHAIN BELT COMPANY of Milwaukee

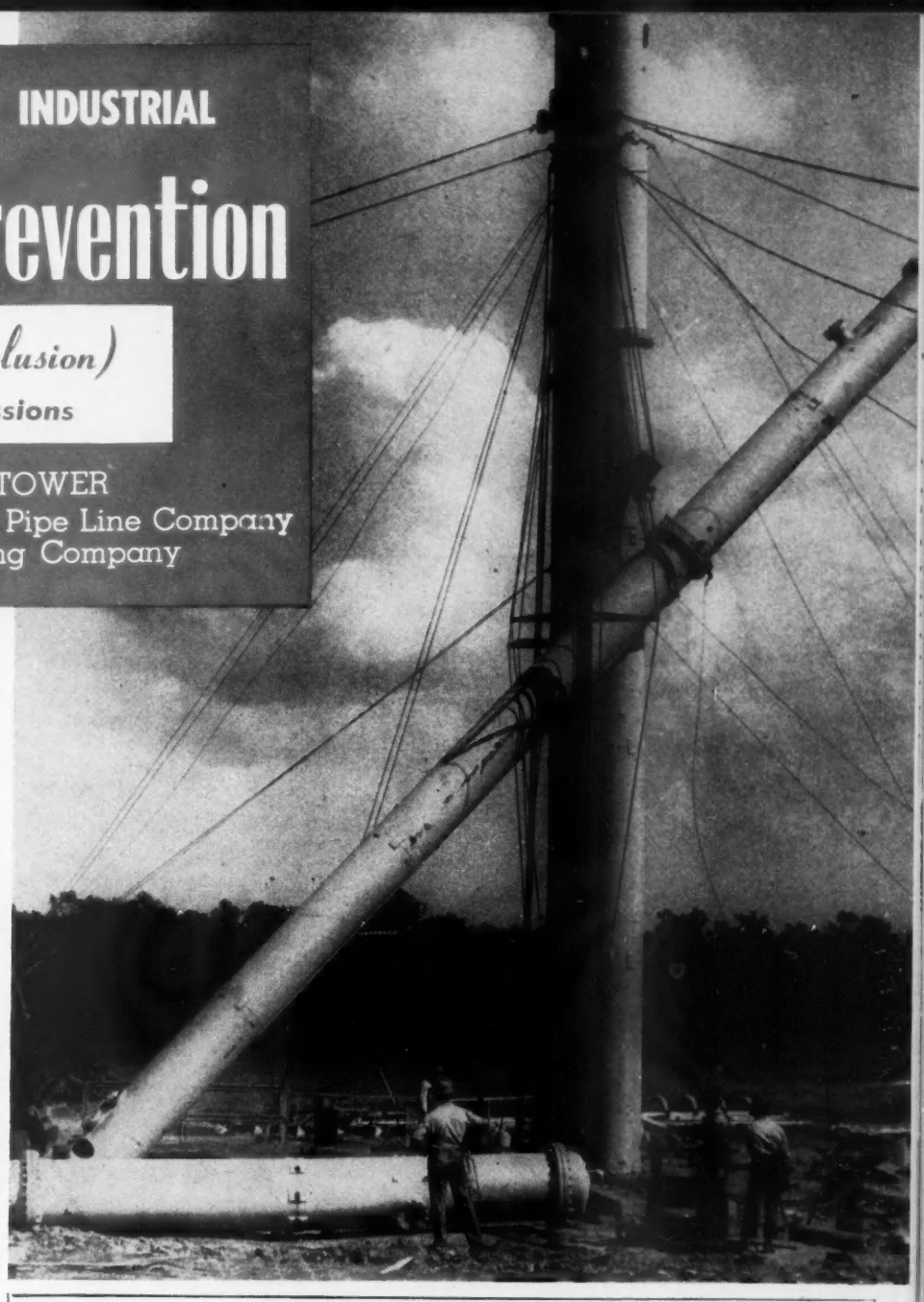
FUNDAMENTALS OF INDUSTRIAL

Accident Prevention

Part 16 (Conclusion)

Group Discussions

By C. L. HIGHTOWER
Safety Director, United Gas Pipe Line Company
and Union Producing Company



Lowering an absorber on a gasoline plant dismantling job. Careful planning, thoroughness in rigging, and constant followup by the supervisor are essential to safety on work of this type.

OPPORTUNITIES IN ACCIDENT PREVENTION

What Accident Prevention Work Will Do

1. Reduce medical, hospital, and compensation insurance costs.
2. Reduce repair and replacement expense to equipment.
3. Reduce the time of absence of employes from the job on account of injury.
4. Reduce the demoralizing effect of serious accidents upon the morale and efficiency of workers.
5. Reduce the charitable burden upon a community brought about by industrial cripples.
6. Stabilize the earning power of workers, thereby stabilizing business in the community.
7. Create a reputation for the company for "no-accidents," thereby attracting the most intelligent men to seek employment.
8. Reduce fires and fire losses.
9. Reduce shutdown time of equipment.
10. Encourage cooperative effort.
11. Save money for employes by keeping them on the job and earning full pay.
12. Develop loyalty and job pride.

How the Foreman Can Promote Safety

1. Take advantage of the intelligence of every worker to make conditions and methods safe.
2. Encourage suggestions from workers and give them credit for usable ideas.
3. Instruct men to finish jobs and leave them in a safe and orderly condition only.
4. Organize work to eliminate rush jobs.
5. Develop efficient and safe working practices rather than haphazard speed.
6. Encourage reports of all unsafe conditions or practices.
7. Give immediate attention to the correction of unsafe conditions or practices.
8. Discipline men for insubordination who violate instructions for the prevention of accidents.
9. Make certain that each man is

OUTLINES FOR GROUP DISCUSSIONS

Training Men for Study By Foremen and Use in Foremen's Meeting

BENEFITS OF PROPER TRAINING

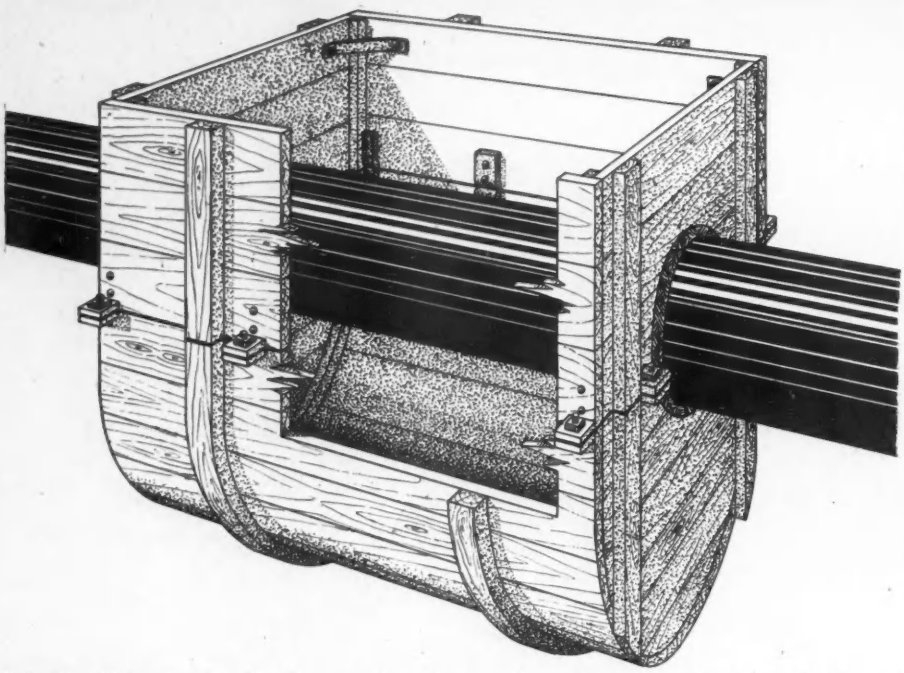
1. Lessens mistakes in operation.
2. Increases efficiency.
3. Lowers costs.
4. Reduces accidents.
5. Develops job interest.
6. Encourages initiative.
7. Develops loyalty and job pride.
8. Promotes cooperation.
9. Insures a smoother running organization.
10. Increases workmen's confidence in foremen.

TRAINING REQUIRED

1. Knowledge of general company policies.
   a. Group insurance.
   b. Company's welfare program.
   c. Service to the public.
   d. Operation of department and crew.
2. Training regarding job technique.
3. Accident prevention.
   a. Specific hazards of job.
   b. First aid.
   c. Reporting accidents.
   d. Safe operation of cars and trucks.
   e. Protection of the public.

METHODS OF TRAINING

1. Individual instruction.
   a. Methods of work.
   b. Hazards and precautions to follow.
   c. Proper contacts with public.
2. Group instruction.
   a. General company policies.
   b. Accident prevention.
   c. First aid classes.



A "bathtub" developed by pipe line crew for making repairs on lines under water. In putting the tub in operation, the men wear waders. After the tub is in position the water is pumped from the inside and the men have a dry place in which to work.

qualified and physically fit to do the work expected.

10. Train one or more men to handle the foreman's work safely so as to be able to take his place should his opportunity come for advancement.

11. Ascertain, by observation and inspection, every way in which men working in the crew might be injured, and provide improvements and instructions to prevent these injuries.

12. Remind the men frequently of what an injury means to them and to the company.

13. Personally investigate every accident with view of determining just what the cause was and what can be done to prevent recurrence.

14. Issue explicit and complete instructions, and on hazardous jobs direct the work in person.

15. Provide suitable protective equipment and see that it is used.

MAINTAINING INTEREST IN SAFETY

Effects of Retarded Interest

1. Accidents increase.
2. Less efficient organization of work.
3. Loss of interest in safety meetings.
4. Failure to report minor accidents.
5. Increased danger of infection in minor injuries due to lack of interest in first aid.
6. Less effective coordination between crews and departments.
7. Eventual loss of respect for entire accident prevention program.
8. Less regard for other company policies.
9. Less consideration of the rights and privileges of customers and the general public.
10. Loss of incentive to improve job knowledge.
11. Failure to appreciate and accept individual job responsibility.

Means of Maintaining Interest

1. Hold safety meetings regularly and on scheduled dates.
2. Have a definite planned program for each meeting.
   a. Program must be interesting to majority.
   b. Have educational value.
   c. Informal meeting with time limit of three quarters to 1½ hours.
   d. Use of information furnished and service available from safety department.
   e. Chairman must have respect of majority and interest in accident prevention.
   f. Superintendent or manager must give chairman benefit of his experience in planning program.
3. Set the example by showing sincere interest and taking active part in program.
4. Show a personal interest in the welfare of employes by observing their method of work and advising as to correct practices and means of protection.
5. Cooperate fully with inspection committee.
   a. Consder their suggestions in the light of constructive criticism.
   b. Act on recommendations or explain why they cannot be carried out.
6. Encourage employes to make suggestions on improvement of methods and conditions.
   a. Give recognition for such suggestions.
7. Show your sincerity of purpose.
   a. Provide safe tools and equipment.
   b. Insist on use of protective equipment.
8. Personally investigate each accident.
   a. Learn exact cause so that steps can be taken to prevent recurrence.
9. Assist in developing a friendly spirit of rivalry.
   a. By discussing no-accident contests.
   b. Encourage employes in attempt to establish good record for their district.
10. Provide each employe with safety literature sent out by the safety department for home and job use.

GOOD HOUSEKEEPING

Effect of Poor Housekeeping

1. Causes loss of small tools and also materials and supplies.
2. Results in general untidy appearance of property.
3. Causes loss of time due to things not being in proper place.
4. Promotes "slipshod" methods and "don't care" attitude among workers.
5. Causes accidents resulting in injury to workers and damage to equipment.

What Foreman Can Do to Promote Good Housekeeping

1. Set the example by keeping his own office and work place in good order.
2. Impress the need for good housekeeping on new men coming into organization.
3. Stress good housekeeping at any meeting held with employes.
4. Provide suitable place for storing all materials and supplies.
5. Have a rack for small hand tools and insist that they be kept in place.
6. See that worn and defective tools are repaired or replaced promptly.
7. Insist upon "cleanup" after each job or at end of each work shift.
8. Urge employes to take pride in work and appearance of working place.

Case Problem for Discussion

One of your employes who is experienced and a good worker will not clean up properly after a job. He persists in leaving unused material lying around, loses tools, and his work place is generally untidy. What factors are responsible for such "slipshod" methods? How would you go about straightening this fellow out?

THE NEW EMPLOYE

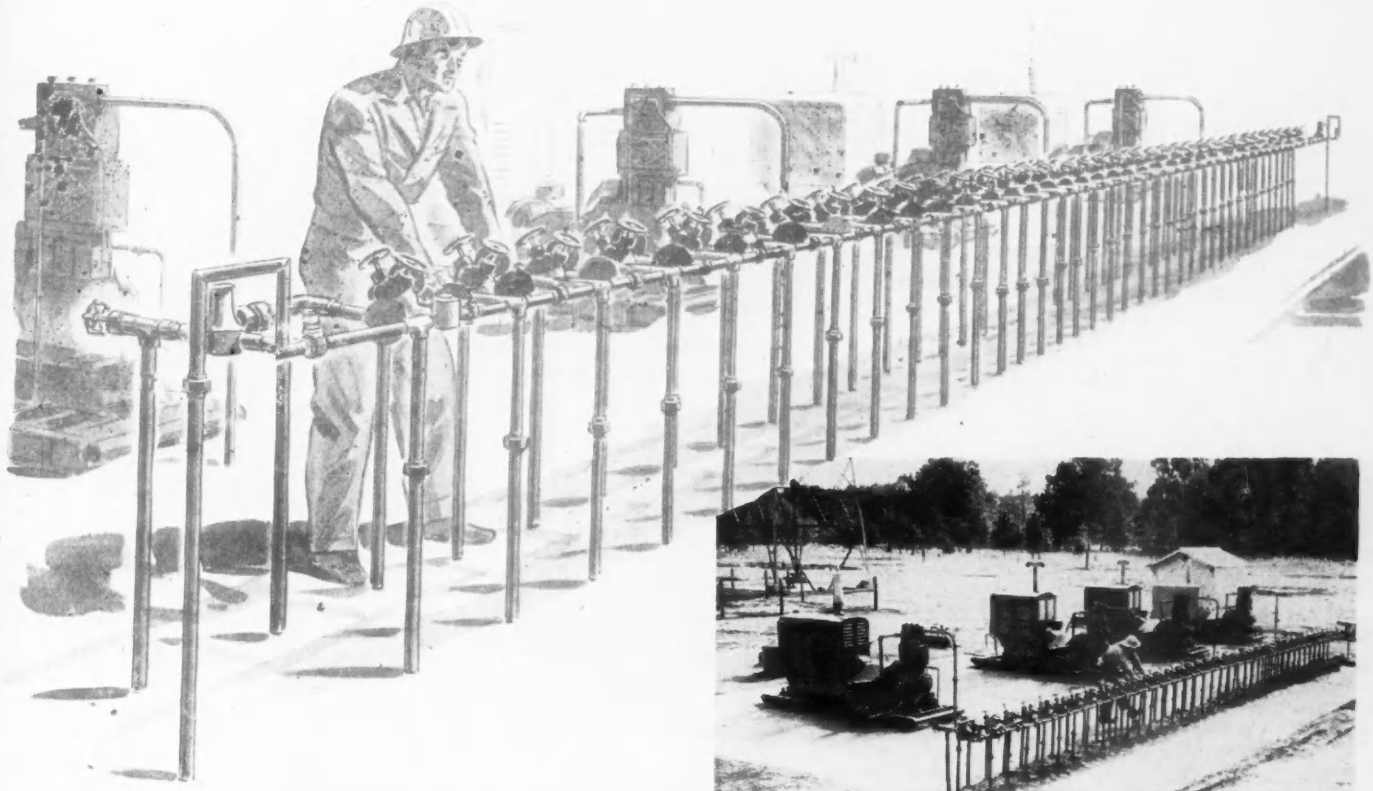
Why He Is More Likely to Have Accidents

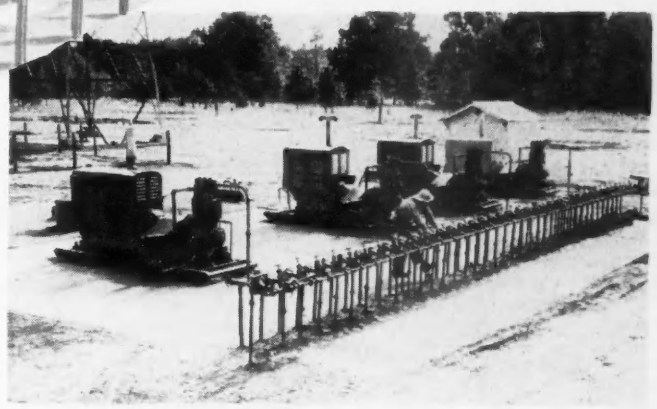
1. Overanxious to make good showing.
2. Inexperienced in handling tools and equipment.
3. Inquisitive . . . too anxious to find out things he does not understand by personal experience.
4. Fear of foreman.
5. Unfamiliar with fellow workmen and with physical conditions.
6. Lack of safety training.
7. Indifference to work.
8. Lack of proper supervision.
9. Subjected to ridicule by the old men.
10. Working alone.
11. Using wrong methods in work.
12. Physical or mental incapacity.

How You Can Help Him

1. By cautioning him and pointing out hazards.
2. Proper instruction and demonstration.
3. By instructing him specifically in his duties and impressing him with the danger of attempting things he doesn't understand.
4. Foreman should be fair and just and have the confidence of his men.
5. Foreman and experienced men should instruct him and encourage him to learn by observation.
6. Thorough instruction in safety work.
7. Work an experienced man with him.
8. Proper method of doing each job should be shown him by experienced worker.
99. Transfer him to another job if he is obviously unsuited for work he is doing.

38 WELLS PUMPED FROM ONE MANIFOLD...





Fluid Power SETS STAGE FOR LOWER PUMPING COSTS!

All surface operations for pumping these 38 East Texas wells have been located at one tank battery—a big step in setting the stage for lower pumping costs.

Concentrating all the units, engines, speed controls, and other surface equipment at this one place greatly simplifies repair and maintenance work. It also saves costly and unprofitable hours otherwise required to visit 38 different locations.

The individual well gauges at this central plant give constant operating information on each well from which new and better informed production planning can be developed.

This pumping plant was originally started with one power unit and four pumping wells. As other wells died, pumps were installed and the system enlarged to meet actual pumping needs. Being in a water drive area, it is predicted that eventually eight power units will be required to furnish the pumping power needed—but these will only be installed as field conditions develop.

The great flexibility of hydraulic equipment is making possible many new ways of reducing operating and inventory costs. This is just one example—there are many others. Why not call a Kobe representative today and let him show you the economy of *Fluid Power* Pumping.

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SAFE OPERATION OF CARS AND TRUCKS

Benefits From Safe Driving

1. Cuts down on car and truck operating expenses.
2. Enables greater efficiency in carrying on the work.
3. Reduces automobile insurance costs.
4. Reduces personal injury accidents involving both employes and public.
5. Develops and helps to maintain good customer relations.
6. Assists in the securing of new customers.

Common Causes of Automobile Accidents

1. Excess speed. (Safe speed depends upon the traffic, road and weather conditions which exist. Under certain conditions 20 miles per hour is too fast.)
2. Following unsafe driving practices and taking unnecessary chances.
3. Assigning cars and trucks to inexperienced or incompetent drivers.
4. Requiring employes to drive on long trips without allowing time for sufficient rest and sleep.
5. Driving with defective brakes, steering apparatus, horn and lights.
6. Picking up hitchhikers.
7. Indulging in horseplay while driving.
8. Crowding driver due to too many riding in cab or front seat.

What the Foreman Can Do to Keep Down Automobile Accidents

1. Set an example for his men by always driving carefully and at a safe speed.
2. Give men a driving test under actual driving conditions and make sure they are competent to handle a vehicle before assigning them to drive.
3. Instruct employes to always drive at a moderate rate of speed and discipline those who do not.
4. Talk with his group at every opportunity and constantly impress upon them the bad effects of automobile accidents and the need for their learning correct driving practices.
5. Permit truck or passenger car drivers sufficient time off for rest between trips.
6. Insist on every driver bringing his car or truck in for a mechanical inspection every 3000 miles.
7. Check with garages where such inspections are made on the outside and make sure they are checking the vehicles properly.
8. Require every driver to inspect his lights, horn, and steering apparatus, and test his brakes before starting out on a trip.
9. Enforce the rule forbidding company drivers to pick up hitch-hikers.
10. Instruct against indulging in horseplay while in or driving a company vehicle, and discipline those employes who violate the instructions.
11. Provide seating arrangements for men riding on trucks, so that they will not be overcrowded and can ride with their feet on the inside of the truck bed.
12. Investigate each automobile accident to determine the cause, and issue instructions or take such other action necessary to prevent recurrence.

Inspecting and resting meters in meter repair shop to insure accuracy of measurement and safe delivery of gas.

EYE PROTECTION

Eye injuries can be prevented. But like any other problem, the solution requires a definite plan of approach and follow-up. The following steps seem to be fundamental in the control of eye accidents:

1. Spotting eye hazards.
2. Removal of the cause when possible.
3. Provision of suitable protective equipment.
4. Followup to see that eye hazards are recognized, that the personnel is familiar with equipment and that same is used.

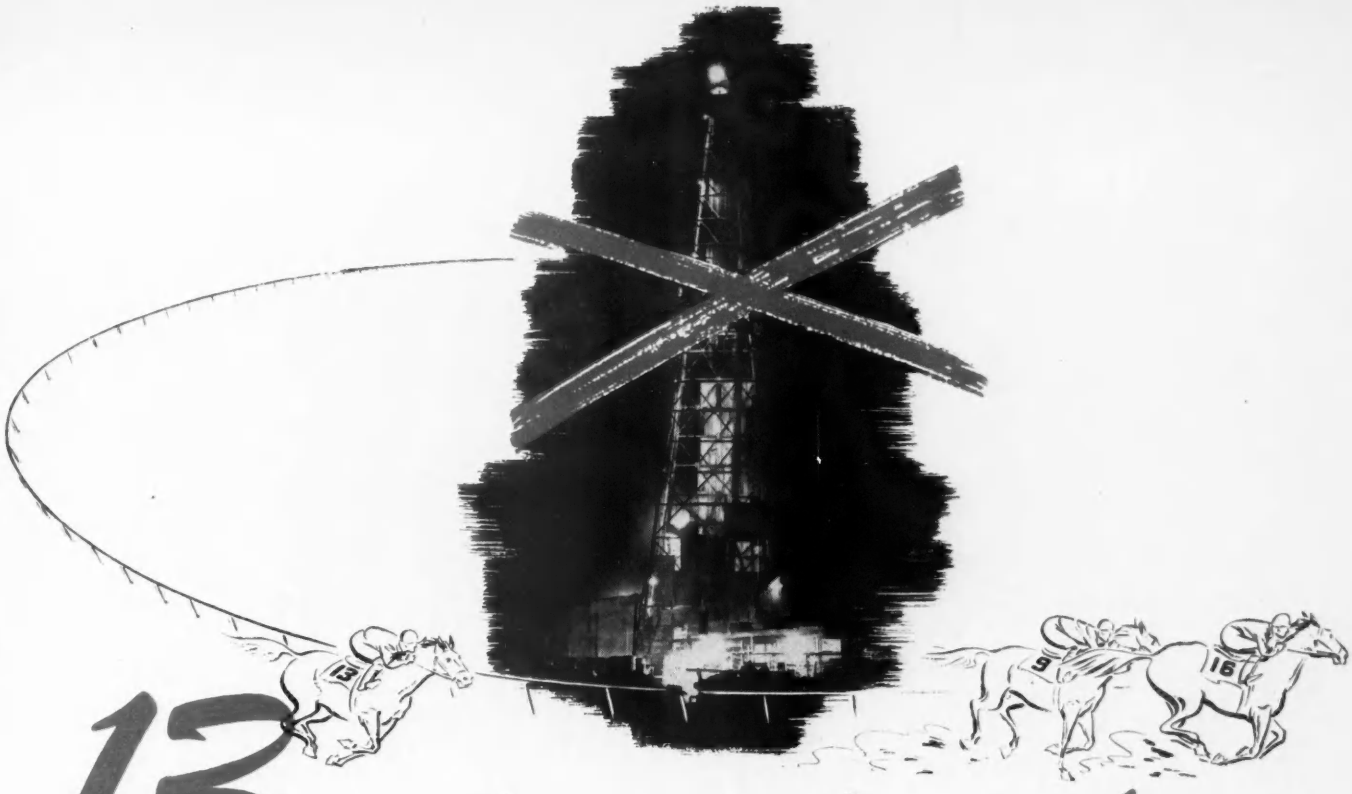
Locating and Recognizing Eye Hazards

Some operations, such as welding, cutting, grinding, etc., involve inherent eye hazards and require constant eye protection during the entire operation. There are many other operations where such hazards do not normally exist, but often develop due to peculiar or unusual circumstances which arise. Thorough knowledge of the job at hand and the ability to anticipate and plan ahead will enable the alert foreman and workman to recognize these hazards before they materialize in an accident and either remove or protect against them. Following is a list of the classes of work where eye hazards exist, and on such work goggles should be worn:

1. Loading, unloading or hauling old pipe where there is probability of flying rust, scale and dirt.
2. Working under machinery, buildings, etc., where work is overhead and it is necessary to look up.
3. Grinding on abrasive wheels, even when glass guards are provided.
4. Chipping or cutting stone, brick or concrete.
5. Breaking of concrete, brick or cast iron.
6. Chipping cast iron, steel, brass, babbitt, or any other metal or material where a flying chip hazard is involved.
7. Pouring, melting or handling molten metal, pitch, asphalt or chemicals.
8. Handling materials in powder or semi-powder form—such as concrete, etc.—where a dust hazard exists.
9. Using compressed air to clean machinery or equipment.

List of Subjects for Conference Discussion

1.	**A Foreman's Responsibilities**		
To the Company	To His Men	To the Public	
2.	**Essentials of Foremanship**		
What Foreman Must Do	What He Must Know	Necessary Personal Traits	
3.	**Giving Orders**		
Why Orders Go Wrong	Results	Characteristics of a Good Order	
4.	**Consideration in Handling Men**		
In Hiring	In Promoting	In Releasing	
5.	**Waste**		
Causes	Who is to Blame	Remedy	
6.	**How Foremen May Cooperate**		
With Each Other	With Superiors	With Men	
7.	**Information a New Man Should Be Given**		
About His Job	About the Comapny	About Safety	
8.	**Employe Safety Meetings**		
Why They are Held	Steps in Conducting A Safety Meeting	How to Keep Men Interested	Suitable Subjects For Discussion
9.	**Breaking-in a New Man**		
Result of Poor Breaking-in	Advantages of Careful Instructions	Points to Consider in Breaking-in	
10.	**Handling Men**		
Common Mistakes	Ways of Eliminating Mistakes		
11.	**A Safety Program**		
Advantage to Employes	Advantage to Company	Advantage to Public	
12.	**Maintaining Interest in Safety**		
Advantages	What the Foreman Can do	Assistance that can be Given by Safety Department	



13 was his unlucky number...

HE LOST A 50-TO-1 SHOT!

CASE HISTORY NO. 24

In a Texas field, 13 wells were all drilling to 10,500 feet. All the operators, except the 13th, had their drill pipe fully rubbered with Patterson-Ballagh Casing Protectors. This one operator was trying to drill *his* well *as cheaply* as possible.

He set 3000 feet of 10¾" surface casing and drilled inside it for a month *without Casing Protectors.* Collapsed casing developed. He ran a casing roller for two weeks, and lost the rollers in the hole. He had to junk the well. The other twelve operators each used a Patterson-Ballagh Casing Protector on every joint of their drilling string and never had a casing failure. Out of the 70 or more wells in this field, this 13th operator's well was the only instance of casing failure and the *only one* where the drill pipe *was not fully rubbered.*

HE LEARNED ABOUT PROTECTORS THE HARD WAY. On his next well, Patterson-Ballagh was his first call, and has continued to be ever since. We estimate, in his "13" tough luck case, that a $1,000 investment in the 90 Casing Protectors needed would have saved him $50,000. ***Can YOU afford to take a 50-to-1 gamble on your well? If you are not 100% protected today, call in your Patterson-Ballagh man and be sure you have one Casing Protector for each joint of your Drill Pipe.***

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DIVISION OF BYRON JACKSON CO.

"Best Bet Yet!"

CASING PROTECTORS

Main Offices:

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10. Scraping metal surfaces.
11. Renewing or tightening up of gauge glasses.
12. Paint spraying (for aluminum paint use, use calobar lens).
13. Handling mud or water-treating chemicals.
14. Cleaning material with, or handling, chemical solutions.
15. Hammering or sledging on hard chisels, cold cuts, chisel bars, connections, etc.
16. Driving pins in or out of drilling machinery chains.
17. Cutting wire lines.
18. Cleaning boiler tubes.
19. Using wire brush to clean threads or fittings.
20. Sledging rock bit or core heads to loosen or tighten.
21. Driving keys in tongs.
22. Welding with acetylene gas.
23. Cutting material with acetylene or other gases.
24. Helping acetylene welders or cutters.
25. Electric arc welding.

Correction of Eye Hazards

The danger of flying particles as well as other eye hazards may sometimes be removed by changing the method of work or the practice being followed. The following suggestions may prove helpful in this connection:

1. Brush the floor of car or cab of truck before starting out for the day's work to eliminate loose dirt and sand being blown up in face.
2. In handling tin, lumber, etc., which is dust covered, arrange the work so that the head and face of the workman is above rather than below the level of the material being handled.
3. Provide ladders in warehouses and storerooms so that workmen can remove material from bins and shelves without having to stand on the floor with head and face on a level below the shelf or bin.
4. Place men so they will be on the windward side of the work where dirt, sand, etc., is blowing.

Provision of Suitable Protective Equipment

The eye protective equipment provided may be listed under four headings:
1. Chipping and dust.
2. Welding.
3. Paint.
4. Chemical.

The chipping goggle is most commonly used. It is equipped with a hardened lens and is suitable for use on any class of work where the danger of flying objects exists. The important thing about welding goggles is to have the proper shade lens for the type of welding being done. In welding with acetylene gas, No. 5 or No. 6 shade lens should be used. Shades 4 and 5 are suitable for cutting with acetylene, while a welding helmet or shield with Shade 10 or 12 lens should be used on electric arc welding. In welding it is usually the man working close by or the onlooker who sustains an injury. For this reason shields should be used and idlers should not be permitted to stand around and watch the work.

Welding goggles are not provided with hardened lens and should not be used on chipping or grinding work.

A chipping goggle with indirect ventilation has been found most satisfactory for such work as spray painting and applying hot primer and "dope." Most eye injuries occurring on work of applying hot primer or "dope" result from getting the dope in the eye when employes wipe away perspiration with their sleeves.

Where chemical is handled, a rubber chemical goggle should be worn constantly. On this operation as well as on all others where an eye hazard exists the accident usually happens in the second that the goggles are inadvertently removed for cleaning or other purposes.

Follow Up to See That Hazards Are Recognized and Protective Equipment Used

1. See that all new men as well as experienced workmen are informed as to operations on which a known eye hazard exists.
2. Insist that goggles be carried on any job just as are other tools necessary to do the work.
3. Inspect goggles weekly. Check first to see that they are on hand, then look for defects.
4. See that men know how to adjust and wear goggles. The average goggle can be made to fit any face regardless of size or contour by merely adjusting the nose piece and head band.
5. Remember that although goggles may sometimes be uncomfortable, a glass eye is a lot more so, and what is worse, you can't see with the glass eye.

1. WHAT CONSTITUTES A SAFE FOREMAN?

A. Leadership
1. Control of men.
2. Self-confidence.
3. Fairness.
   a. To men.
   b. To company.
      1. Respect of the men.
      2. Confidence of the men.
      3. Judicial decisions.
4. Tactful diplomacy.
5. Initiative.
6. Personality.
7. Self control.
   a. Set an example (personal).
8. Ability to judge men.
9. Ability to train men.

B. Experience
1. Knowledge of the job.
2. Ability to plan work safely.
3. Ability to think safely.
4. Definite instructions to men.
   a. Receiving instructions.

C. Cooperation
1. Willingness to consider suggestions.
2. Acknowledgment of ability.
3. Willingness to accept worthwhile ideas.

D. Interest in Welfare of Men
1. On the job.
2. To and from work.
3. Impartiality.

Seadrome-Type Foundation

■ CONTINUED FROM PAGE 41

stability with a minimum of wave stress. To give the necessary deck area for drilling operations, eight buoyancy units arranged in a rectangular space pattern are utilized as shown in the longitudinal and transverse sections on Figure 1, the longitudinal spacing between units being 66 feet with a transverse spacing of 70 feet.

This arrangement is designed to operate in the open ocean at all depths between 20 and 200 feet. It may be noted that the necessary stiffness and strength of the rig are assured by a system of horizontal and vertical stays. The required rigidity of the deck is obtained by suitable trusses attached to the upper tubes of the buoyancy units.

Each buoyancy unit is provided with a cone-shaped ballast and anchorage tank, attached by means of a universal joint to a telescoping column fitted to the central tube of the buoyancy tanks. The purpose of this telescoping arrangement is to lower the ballast tank to contact the ocean bottom so that the upper structure can be provided with a solid foundation for its support at various designed depths.

The position of the telescoping column is controlled by the use of compressed air, by which means the ballast tank can be raised or lowered to obtain bottom contact and then clamped into position. By this method of operation the drilling platform can be located and held level irrespective of irregularities of the bottom surface.

Adjusting Buoyancy

Under normal conditions of operation, the telescoping feature will not be used in depths of 20 to 60 feet, except for leveling purposes. For depths in excess of 60 and not exceeding 150 feet, the telescoping columns carry a considerable part of the structural weight of the rig, the columns being under compression, and the weight carried by them being determined largely by the load-carrying value of the ocean bottom. If the bottom is relatively soft, the load on the telescoping columns can be reduced to the desired value by suitable control of the buoyancy tanks. In other words, the structure may be 100 percent buoyant or 100 percent resting on the ballast tanks. For depths greater than 150 feet, the telescoping columns are operated under tension, the ballast tanks being flooded and the rig wholly supported by its buoyancy tanks. Also for depths greater than 100 feet, the mooring system (shown in Figure 1) is used to eliminate any possibility of lateral movement of the deck due to the elasticity of the telescoping columns.

There will be numerous occasions when storm winds and waves would make it extremely hazardous to attempt to service a drilling rig in an exposed location in the open ocean by ship. Waiting for calm weather to bring in supplies might cause delays that would slow down drilling operations or even bring them to a standstill. Therefore, provision should be made on such an offshore rig to house and maintain the personnel, and also to provide storage space for the necessary supplies required for drilling operations.

The accompanying sketch shows a tentative arrangement of the drilling equipment on the rig. There is ample space on the main deck and between decks to house all equipment, supplies, and personnel, making the rig a self-contained unit that can be operated continuously and easily moved to a new location after the drilling program is completed.

December Completions Top Previous Month's

WELL completions totaled 2598 during December to show an increase over the 2521 of November and the 2170 completed in December a year ago. Normally, December completions tend to drop from the preceding month's due to the advent of cold weather. This year, however, the unusually warm weather throughout most of the nation during the month permitted even an accelerated rate.

Records for 1946 showed that 30,839 wells were completed to make it the first year since Pearl Harbor to reach the 30,000 mark. This year's total represented an increase of 13.6 percent over the 27,140 wells drilled in 1945. Although drilling has made rapid strides towards normalcy, this year—the first full year since the end of hostilities—did not match the last prewar year of 1941 in which 32,510 wells were drilled. The outlook for 1947 indicates that it will more nearly approximate that prewar figure than did the year just past.

Drilling during 1946 exceeded most of the expectations held at the outset of the year and might have surpassed them even more had not several hindering shortages existed. The labor strike in the steel industry that extended into the early part of the year resulted in inadequate drill stem material for string replacement and formation of new strings. This condition worked specifically against drilling in strict wildcat territory. Shortage of cement, also brought about by a strike in the industry, served as a hold-up on many completions, necessitating the holding of the rig on location for a longer time.

On the other side of the ledger were forces that were working in the program's favor. Much newer and improved machinery and supplies became available with the close of the war, and another important factor was the return to the oil fields of many old hands from military service and higher paying jobs in defense industry. The net result of these forces was that fewer drilling rigs drilled more wells than in previous years.

Of the year's total of 30,839 wells, 15,961 were completed as oil wells, 207 as distillate producers and 3303 as gas wells.

*Well Completions in the United States During December, 1946, and Cumulative for Year

(Figures compiled from weekly reports of Oil Weekly staff, with following exceptions: Illinois from Illinois Geological Survey; Indiana from Indiana Division of Geology; Missouri from Missouri Geological Survey; Bradford, Kane-Clarendon, Kane to Butler, and Allegany fields of Pennsylvania and New York from The Producer's Monthly.)

State or District	MONTHLY COMPLETIONS, December, 1946													CUMULATIVE TOTAL COMPLETIONS				DRILLING OPERATIONS AT END OF MONTH					
	New Wells								Total Drld Dpr.	Total Completions				January-December				December, 1946				Nov., 1946 Total	Dec., 1945 Total
	Oil	Dist.	Gas	Dry	Wtr. Input	Gas Input	Wtr. Disposal	New		Dec., 1946	Nov., 1946	Dec., 1945	Footage Dec., 1946	Wells 1946	Wells 1945	Percent Diff.	Footage, 1946	Dr.	R.U.	S.D.	Total		
Alabama				1				1		1	2	2	3,750	17	38	— 55.3	69,381	4	1	6	11	6	5
Arizona														2	3	— 33.3	6,259						
Arkansas	9	1	1	13				24		24	19	25	108,824	203	200	+ 1.5	975,012	22		5	27	33	39
California	108		3	34				145	11	156	155	125	568,311	1,897	2,090	— 9.2	7,860,125	229	56	38	323	306	333
Colorado	22			4				26		26	15	9	157,390	176	53	+232.1	1,115,503	40	7	9	56	52	76
Florida				2				2		2	3	1	9,973	27	15	+ 80.0	178,378	6	1	2	9	9	8
Georgia														2	6	— 66.7	8,441						2
Illinois	102		2	105				209	2	211	214	162	539,491	2,379	1,908	+ 24.7	5,948,579	208	16	12	236	300	292
Indiana	29		1	21				51		51	35	22	97,006	522	332	+ 57.2	922,836	44	13	8	65	68	62
Iowa															1	—100.0				1	1	1	
Kansas	109		42	69			1	211	6	227	185	174	698,637	2,221	1,757	+ 26.4	6,919,938	312	21	14	347	287	324
Kentucky	18		14	17				49		49	69	51	89,552	861	722	+ 19.3	1,502,778	73	16	11	100	63	67
Louisiana	70	4	9	41				124		124	127	103	703,314	1,422	1,087	+ 30.8	8,762,668	152	4	6	162	185	206
North Louisiana	40	1	8	27				76		76	66	54	265,592	810	459	+ 76.5	3,252,786	48	1	6	55	79	97
South Louisiana	30	3	1	14				48		48	61	49	437,722	612	628	— 2.5	5,509,882	104	3		107	106	109
Maryland														1	1		7,710					1	
Michigan	15		10	35				60		60	51	49	135,673	785	763	+ 2.9	1,756,718	75	14	14	103	103	139
Mississippi	16		4	12				32		32	27	18	255,564	266	369	— 27.9	1,953,902	59	3		62	71	47
Missouri	2							2		2			558	34	48	— 29.2	27,567	4		1	5		8
Montana	12		1	1				14		14	16	11	32,744	263	354	— 25.7	623,668	28	4	15	47	56	72
Nebraska											2	1		5	7	— 28.6	12,799	1		2	3	4	5
New Mexico	31		2	5				38	3	41	37	30	176,629	463	425	+ 8.9	1,761,560	93	3	18	114	107	103
New York	54			3	31			88		88	92	84	124,541	1,153	1,155	— 0.2	1,620,902	72	12	20	104	113	93
North Carolina														5	1	+400.0	26,173	1			1	1	
North Dakota															7	—100.0							
Ohio	35		44	36				115	1	116	100	73	304,646	1,326	1,023	+ 29.6	3,407,177	227	22	15	264	245	215
Oklahoma	138	1	16	148		6		309	9	318	321	192	873,553	3,301	2,351	+ 40.4	10,201,937	451	30	14	495	527	529
Oregon														2	1	+100.0	17,148						
Pennsylvania	118		44	16	101	24		303	4	307	327	304	517,233	4,143	4,000	+ 3.6	7,043,955	279	45	88	412	424	400
South Dakota											2			3	3		8,038			2	2	4	
Tennessee														2	6	— 66.7	1,618						4
Texas	423	5	38	202	2			670	13	683	643	652	3,182,145	8,381	7,409	+ 13.1	35,913,609	1,080	67	89	1,236	1,202	1,202
E. Tex. Border	4		7	3				14		14	17	15	70,463	194	128	+ 51.6	1,131,572	16	1		17	23	38
Rest of E. Tex.	27		1	9				37	1	38	30	39	195,700	524	268	+ 95.5	2,683,767	61	10	11	82	66	80
North Texas	91		2	62	2			157	2	159	167	206	478,062	2,291	1,850	+ 23.8	5,899,443	188	16	12	216	184	225
West Central	24		1	25				50	4	54	41	43	142,294	667	482	+ 38.4	1,735,513	90	11	26	127	119	123
West Texas	145			24				169	3	172	162	131	863,173	1,870	1,732	+ 8.0	9,058,755	392	9	17	418	428	389
Panhandle	18		18	4				40	2	42	17	30	127,585	368	588	— 37.4	1,042,553	102	6	6	114	98	79
Upper Coast	28	3	1	17				49		49	60	65	363,222	679	713	— 4.8	4,900,896	78	2	1	81	88	94
Lower Coast	61	2	6	24				93	1	94	93	88	590,002	1,155	1,077	+ 7.2	7,269,265	106	8	6	120	127	121
Southwest	15		2	27				44		44	38	28	155,211	450	476	— 5.5	1,523,932	26	3	2	31	35	29
South Central	10			7				17		17	18	7	196,433	183	95	+ 92.6	667,913	21	1	8	30	34	24
Utah														5	4	+ 25.0	14,329	4		3	7	5	7
Virginia														2	1	+100.0	5,370						
Washington														1	4	— 75.0	6,230	1			1		
West Virginia	12		33	9				54		54	65	68	139,284	806	803	+ 0.4	2,190,187	313	27	51	391	420	408
Wyoming	9		1	2				12		12	14	14	51,222	163	193	— 15.5	678,790	49	6	5	60	64	105
Total U. S.	1,332	11	265	776	134	30	1	2,549	49	2,598	1,521	2,170	8,770,040	30,839	27,140	+ 13.6	101,369,285	3,827	368	449	4,644	4,657	4,751

* Effective with data for September, 1946, figures are on calendar month basis. Previously, all statistics were for 4-week and 5-week months, explained when published.

4831 Exploratory Wells Completed in 1946

EXPLORATORY completions totaled 432 in December to show a slight gain over November's 426 wells, but to fall short of the 486 completed in October, the record drilling month of the year. In 1945, December's well total showed considerable letup from the preceding month's, while in 1946 the delayed start of cold weather allowed drilling to continue at a fairly brisk pace.

The ratio of successful tests among the total exploratory wells completed during December was 17.1 percent, compared with 16.4 percent in the preceding month, and the same figure, 17.1 percent, in October.

Exploratory well completions for the year totaled 4831 to make 1946 the all-time record wildcatting year. This new level was 7.1 percent higher than the previous high of 4510 wells recorded in 1945. Although the industry was able to drill more tests during the year just past, it was unable to better the percentage of success, as each year's record showed that 19.4 percent of the wells were finaled as producers.

Total new oil discoveries for the year showed substantial gain, increasing from 475 to 515 for 8.4 percent. New oil fields decreased, however, from 317 to 310 or 2.2 percent, but new pays in existing fields increased 29.7 percent from 158 to 205, while extensions to established fields rose from 154 to 160, a gain of 3.9 percent.

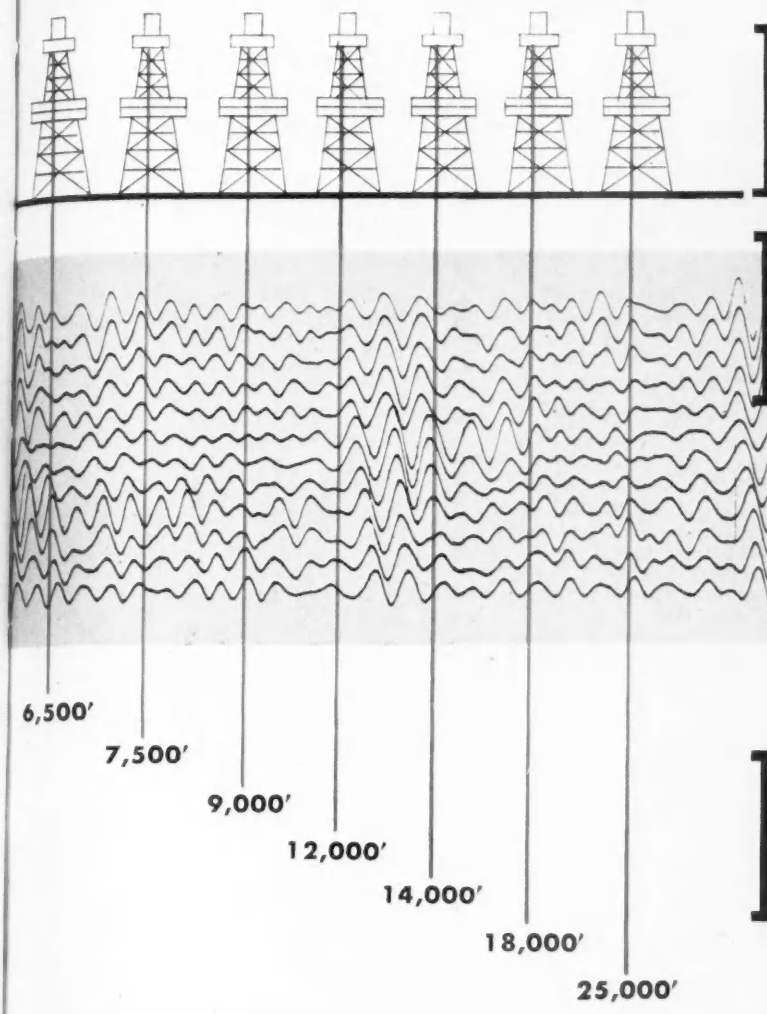
New sources of distillate discovered

Summary of Results of Exploratory Drilling

ITEM	Dec., 1946	Nov., 1946	Twelve Months: JAN.-DEC. 1946	1945	Percent Diff.
Oil Discoveries	46	37	515	475	+ 8.4
New Fields	28	25	310	317	— 2.2
New Pays	18	12	205	158	+ 29.7
Distillate Discoveries	6	12	72	44	+ 63.6
New Fields	1	6	30	30	
New Pays	5	6	42	14	+200.0
Gas Discoveries	5	6	104	128	— 18.8
New Fields	3	4	75	113	— 33.6
New Pays	2	2	29	15	+ 93.3
Total Discoveries	57	55	691	647	+ 6.8
Extensions to Fields	17	15	245	230	+ 6.5
Oil Fields	12	11	160	154	+ 3.9
Distillate Fields		1	7	6	+ 16.7
Gas Fields	5	3	78	70	+ 11.4
Total Prod. Tests	74	70	936	877	+ 6.7
Dry Holes	358	356	3895	3633	+ 7.2
Wildcats	352	349	3795	3486	+ 8.9
New Pays	1	2	38	39	— 2.6
Outposts	5	5	62	108	— 42.6
Total Expl'tory Tests	432	426	4831	4510	+ 7.1
Percent Productive	17.1	16.4	19.4	19.4	
Percent Dry	82.9	83.6	80.6	80.6	

Results of Exploratory Drilling in December and Year, 1946-1945, by Districts

State or District	MONTH OF DECEMBER, 1946													YEAR, 1946																
	Productive Tests										Unproductive Tests				Productive Tests									Unproductive Tests					Total Exploratory Tests	
	New Fields			New Pays			Extensions			Total Productive				Total Exploratory Tests	New Fields			New Pays			Extensions			Total Production		Wildcats	New Pays	Outposts	Total Dry			
	Oil	Gas	Dis.	Oil	Gas	Dis.	Oil	Gas	Dis.		Wildcats	New Pays	Outposts		Oil	Gas	Dis.	Oil	Gas	Dis.	Oil	Gas	Dis.	12 Mo. 1946	12 Mo. 1945				12 Mo. 1946	12 Mo. 1945	12 Mo. 1946	12 Mo. 1945
Alabama											1			1											2	13			13	21	13	23
Arizona																										2			2	3	2	3
Arkansas	1		1	1						3	9			12	5		1	6			2			14	2	55		1	56	43	70	45
California											25			25	11	4		3			7	4		29	15	254			254	282	283	297
Colorado											3			3	1			1			4			6	5	13	2	1	16	11	22	16
Florida											2			2							1			1		24			24	13	25	13
Georgia																										2			2	6	2	6
Illinois	3			1	1		4	1		10	50			60	30	1		29	1		51	1		113	103	543			543	386	656	489
Indiana											8			8	6	1		3			5			15	12	92			92	87	107	99
Iowa																														1		1
Kansas	4			1			2	1		8	23			31	36	5		6			19	15		81	94	269			269	317	350	411
Kentucky											4			4	7	2		4			6			19	12	84			84	90	103	102
Louisiana	2			4		2				8	16			24	16	1	6	33	4	16	6	1	2	85	66	208	1	3	212	135	297	201
North Louisiana	1									1	13			14	5		3		1	2	6	1	1	19	22	123	1	2	126	84	145	106
South Louisiana	1			4		2				7	3			10	11	1	3	33	3	14			1	66	44	85		1	86	51	152	95
Maryland											1			1												1			1	1	1	1
Michigan	1									1	19			20	13	5	1		3		4	1		27	31	227	1	2	230	246	257	277
Mississippi	1						1			2	10			12	2	1			2	1	4	1		11	11	79			79	12	190	132
Missouri																										23			23	20	23	20
Montana				1						1				1	3			2	2					7	8	19		3	22	16	29	24
Nebraska																										5			5	7	5	7
New Mexico	1									1	2			3	2			2			1	1		6	16	48	2		50	68	56	84
New York																									3	1			1	17	1	20
North Carolina																										5			5	1	5	1
Ohio							1	3		4	5			9	1						2	25		28	28	45			45	66	73	94
Oklahoma	2	1				1	2			6	58			64	51	21	1	9		1	18	3	1	105	111	414			414	299	519	410
Oregon																										2			2	1	2	1
Pennsylvania															4	8								12	36	2	1	1	4	58	16	94
South Dakota																										3			3	3	3	3
Tennessee																										2			2	6	2	6
Texas	13	2		10	1	2	2			30	114	1	5	150	118	19	20	102	16	24	26	12	4	341	283	1326	29	48	1403	1253	1744	1536
E. Texas Border											1			1	3	2		2				1	1	9	10	12			12	19	21	29
Rest of E. Texas	1			1			1			3	5			8	7		2	4			2	1		16	11	81	2		83	72	99	83
North Texas	3			2			1			6	27		2	35	34	2		19	1		3			59	56	366	4	4	374	314	433	370
West Central	1									1	15			16	25	3		12						40	27	179	6	2	187	127	227	154
West Texas	2			1						3	8	1	2	14	19	4		14	1		12			50	55	137	11	20	168	213	218	268
Panhandle											1			1												12	1		13	10	13	10
Upper Coast		1		2		1				4	10			14	6	1	4	26	4	16	5	2	1	65	59	138	1	3	142	148	207	207
Lower Coast	3	1		3	1	1				9	17		1	27	10	3	14	20	5	7	1	5	2	67	48	155	2	13	170	178	237	226
Southwest	2			1						3	23			26	7	4		5	4	1	3	3		27	12	150	1	4	155	119	182	131
South Central	1									1	7			8	7				1					8	5	96	1	2	99	53	107	88
Utah															1									1		4			4	2	5	2
Virginia																										2			2	1	2	1
Washington																										1			1	4	1	4
West Virginia																6		2			1	13		22	20	9	1	1	11	21	33	41
Wyoming											2			2	3	1	1	3	1		3	1		13	19	18	1	2	21	27	34	46
Total U. S.	28	3	1	18	2	5	12	5		74	352	1	5	432	310	75	30	205	29	42	160	78	7	936	877	3795	38	62	3895	3633	4831	4510



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showed an increase of a little over 63 percent, with new pay horizons proving the difference as the number of new fields remained the same as last year's. The year's gas discoveries decreased almost 19 percent, with new fields and new pays both showing drops. Extensions to these two types of fields showed small increases in each case.

Although the 1946 exploration program topped the previous year's by 7 percent, it failed to widen the difference as much as overall drilling activity, which at the year's end showed an increase of over 13 percent. This overall drilling is the industry's total drilling program, including all exploration and field development.

Drilling during the year was favored by many advantages over the preceding year, as more experienced men returned from military service and newer and better equipment became available. However, other handicaps arose to disrupt, to some extent, the return to normalcy in the oil fields. Shortages of tubing, arising from labor strikes in the steel industry, along with short supplies of cement, also brought on by strikes, served as deterrents to operations. Even lack of drilling mud was experienced in some areas, a condition caused by lack of adequate transportation.

Part of the year was a period of drill-stem borrowing, while the shortage caused many operators to stack their rigs. These shortages were probably reflected in wildcatting more than routine field drilling, for operators who were short on supplies or equipment were reluctant to drill wildcat territory of unknown pressures and conditions.

December Exploration

Of December's 432 exploratory tests drilled, 74 were productive. Of these, Texas accounted for 30 producers out of 150 wells, while Illinois was second with ten producers from 60 attempts. Kansas and Louisiana each had eight successful wells that enlarged reserves out of 31 and 24 wells, respectively. Oklahoma accounted for 64 exploratory tests and gained six producers.

Arkansas netted a small oil field, a distillate field, and a new pay horizon in the Buckner oil field of Columbia County. The new pay came in flowing 242 barrels per day and will undoubtedly lead to further quest for Travis Peak production in the area.

Illinois gained three pumping oil fields in December, a new oil pay, and extensions to four oil fields. Two of the new fields appear to be of little importance, while the other, the Massilon field in Wayne County, seems to be of some significance. It is 4½ miles from production and produces from the Lower O'Hara lime. Illinois also discovered a new pay in its Morgan County Waverly gas field, and extended gas production in its Bond County Panama field two miles to the east.

The month saw four new oil fields discovered in Kansas. Three of these were small pumpers, while the other opened a good oil pool in Barber County. This field's discovery came in flowing 1200 barrels per day from the Simpson sand. The Simpson sand was also found productive for a new pay horizon in the Marion County Lehigh field. Kansas also had two oil fields and a gas field extended.

Louisiana gained two new oil fields. The most important was a Beauregard Parish Cockfield sand discovery, which came in flowing 293 barrels of 49-gravity crude per day. Important new sands were located in the Black Bayou, St. Gabriel, St. Martinville and Sorrento fields. New producing sands were discovered in the Bayou des Glaise and South Jennings distillate fields.

Other Discoveries

Michigan's only discovery of the month was a new field located in Oceana County and named Stony Lake field. The discovery flowed 192 barrels of 44.9-gravity crude per day from the Traverse lime. An extensive core drill program preceded this discovery and a structure trap covering a large area is indicated. A new oil field was opened in Mississippi during December and the La Grange oil field, Adams County, was extended ½ mile west. The discovery was the Pine Ridge field in Adams County, which produces from the Wilcox sand. The initial production of the discovery well was 114 barrels of 40.9-gravity crude per day through a 10/64-inch choke. Although the find is important, it is not spectacular.

Out of nine exploratory tests Ohio was able to extend its Morgan County Brush Creek oil field two miles west and three gas fields from two to three miles. Oklahoma gained two new shallow of oil fields (neither of which appears spectacular), a new gas field, extensions to two oil fields and a new pay horizon in its Wayne, Southwest, distillate field of McClain County.

Thirteen new oil fields, 2 gas fields, ten new oil pays, 1 gas pay and 2 new distillate pays were discovered in Texas during December. In addition two oil fields were extended for a grand total of 30 producers out of 150 tests.

New Oil, Distillate and Gas Fields and New Pay Horizons Discovered in the United States in December, 1946

Also Important Extensions to Established Fields

COUNTY	COMPANY, WELL AND LOCATION	Date Spudded	Date Completed	Total Depth (Feet)	Completion Horizon (Feet)	[1]Name, Character and Age of Producing Formation	[2]Initial Production Method and Choke	Gravity of Oil	[3]Structure; [4]Method of Discovery	Tentative Evaluation of Discovery or Extension (Opinion of Relative Importance of Area from General Viewpoint of the Industry Based on Pertinent but Necessarily Incomplete Data; Later Development or More Complete Data Obviously Might Require Revision of this Tentative Opinion).
Columbia	McNeil					**ARKANSAS—New Oil Field**				
	Atlas O & R Co.'s R. A. Wynn 1, sw sw 8-16s-19w, 2 mi s shallow Stephens fld.	9-18-46	12- 5-46	6627	3504- 3511	Pettit li; L Cre	P 45; 43 wtr	....	.....	Probably of small extent.
Columbia	Buckner					**ARKANSAS—New Oil Pay**				
	McAlester Fuel Co.'s (was G. H. Vaughn) W. C. Deanl, (OWWO) c nw nw 15-16s-22w.	12-10-46	12-24-46	7308	.....	Travis Peak sd; L Cre	F 242; ¼"	....	.....	Will probably lead to more activity in area.
Columbia						**ARKANSAS—New Distillate Field**				
	McAlester Fuel Co.'s R. S. Warnock Est. A-1, c nw ne 6-17s-19w, 2 mi nw Village fld.	11- 6-46	12-20-46	7418	7403-	Smackover li; Jur	F 50; 4.5 mln; ¼"			
Marion						**ILLINOIS—New Oil Fields**				
	Omega									
	P. Doran and Delta Drlg. Co.'s A. A. Millican Est. 1, sw sw se 16-3n-4e, 7 mi fr Xenia pl.	10-27-46	12-31-46	2499	2488- 2499	McClosky li; Miss	P 59	....	.....	
Shelby	Shelbyville									
	W. R. Britton's Kensil Heirs 1, ne ne se 21-11n-4e, 5 mi fr Clarksburg pl.	5-29-46	12-17-46	1855	1830- 1845	Aux Vases sd; Miss	P 2; 3 wtr	....	.....	
Wayne	Massilon									
	Texas Co.'s E. Hines "C" 1, se se se 1-1s-9e, 4½ mi fr nearest prod.	9-28-46	12-10-46	3262	3254- 3262	Lwr O'Hara li; Miss	P 192	....	.....	

Two New USGS Maps of Toole County, Montana

Two new oil-field maps of a portion of Toole County, Montana, have been issued by the U. S. Geological Survey as the first of a new series that eventually will cover the entire Kevin-Sunburst oil field.

The two maps cover an area of 64 square miles, one showing the culture, well status, surface geology, geologic structure and a composite section of about 940 feet of exposed rocks, and the other showing 20-foot contours on the eroded surface of the Madison limestone, wells that reached the Madison, a standard well log, and a note on production in the High Gravity Pool on the northwest flank of the Kevin-Sunburst dome.

At the same time, the Survey announced that the reason for the occurrence of high-gravity oil low on the dome is under investigation. Thus far, high gravity oil has been found in pools of limited extent, with little if any closure and with erratic well behavior. The reason for its occurrence is not known, but controlling factors may be related to deformation and erosion during middle and late Upper Jurassic time; to isolation of high-gravity oil in stratigraphically higher horizons within the Madison limestone, or possibly to tilting of the rocks during Pleistocene time, thus disturbing pools in which hydrocarbon factionization had taken place.

Copies of the new maps may be purchased at ten cents each from Bureau offices in Washington, Denver, Casper, Wyo., and Billings, Mont.

		ILLINOIS—New Oil Pay									
Jasper	Willow Hill	Secure Oil Co.'s L. Mascher 1, ne ne ne 3-6n-10e	10-22-46	12-10-46	2673	2661- 2673	Rosiclare li; Miss	P 255	....		
		ILLINOIS—Oil Field Extensions									
Wabash	Browns, E.	Magnolia Pet. Co.'s J. Hirschelman Unit 1, ne nw ne 14-2s-14w, ¾ mi s ext.	11-28-46	12-31-46	2582	2575- 2582	Cypress sd; Miss	P 300	....		
Wayne	Clay City Consol.	McCall and Cline Drlg. Co.'s Atterberry 1, nw nw se 14-1n-7e, ¾ mi ext.	9- 9-46	12-17-46	3140	3016- 3030	Aux Vases sd; Miss	P 8; 24 wtr	....		
Wayne	Goldengate Consol.	Perry Fulk's L. B. Ellis 1, s nw nw 29-2s-9e, ¾ mi ext.	10-12-46	12- 3-46	3477	3408- 3416	Rosiclare li; Miss	P 30; 25 wtr	....		
White	Storms	Sinclair and Ohio's S. E. Holderby 4, ne ne se 12-6s-9e, ½ mi ext.	9-30-46	12-31-46	3141	2251- 2259	Waltersburg sd; Miss	P 9; 20 wtr	....		
		ILLINOIS—New Gas Pay				2320- 2323	Tar Springs sd; Miss				
Morgan	Waverly	L. M. Ladet's G. S. McMahan 1, 22-13n-8w, 330 fr nl, 330 fr el.	8-15-46	12-17-46	1543	980- 991	Devonian li; Devo	1.3 mln	....		2nd well in pl. W offset to disc well which produces fr Penn sd.
		ILLINOIS—Gas Field Extension									
Bond	Panama	Bond County Gas Co.'s Harwood 2, se ne sw 36-7n-4w, 2 mi e ext.	11- 2-46	12- 2-46	753	735- 750	Pennsylvanian sd; Penn	2 mln	....		
		KANSAS—New Oil Fields									
Barber		Continental Oil Co.'s Smith 1, nw nw nw 21-33s-12w, 4 mi e Medicine Lodge pl.		12-10-46	4895	4848- 4895	Simpson sd; Ord	F 1200; 1 mln	27	Ant; dr	Opens good oil pool.
Butler		K. T. Weidemann's Shinn 1, sw sw ne 19-29s-8e, 4 mi e Brandt-Sensenbaugh pl.		12-11-46	2773	2730- 2773	Mississippi chat; Miss	P 30	....	Ant; sub-dr	Of no great significance.
Cowley		B. B. Blair's Miller 1, nw nw se 15-32s-5e, 1 mi w Frog Hollow pl.		12-12-46	3096	3040- 3096	Bartlesville sd; Penn	P 6	....	Ant; dr	Of no importance.
Wilson		Ruth Lane et al's Campbell 1, se se se 19-28s-15e, 3 mi w Guilford pl.		12-11-46	1529	1423- 1453	Bartlesville sd; Penn	P 30	....	Ant; dr	Of no importance.
		KANSAS—New Oil Pay									
Marion	Lehigh	Anderson-Prichard Oil Corp.'s Weyland 1, se nw sw 27-19s-1e		12-14-46	3291	3289- 3291	Simpson sd; Ord	Sw 239	....	Ant; dr	Other prod fr Mississippi chat.
		KANSAS—Oil Field Extensions									
Ellsworth	Edwards	Cities Service Oil Co.'s Rathbun 1, sw se se 16-17s-8w, ½ mi nw ext.		12- 5-46	3223	3186- 3223	Arbuckle li; Ord	P 79	....	Ant; sub-dr	
Rice	Edwards	Phil-Han Oil Co.'s Kalino 1, ne ne sw 3-18s-8w, ½ mi s ext.		12- 7-46	3288	3261- 3288	Arbuckle li; Ord	P 462	....	Ant; dr	
		KANSAS—Gas Field Extension									
Stanton	Hugoton	Stanolind O & G Co.'s Glenn 1, center of Sect 15-28s-39w, 7 mi w ext.		12- 1-46	2500	2280- 2484	Permian sd; Perm	F 6.4 mln	....	Ant; dr	
		NORTH LOUISIANA—New Oil Field									
Catahoula		Lyons & Prentiss-Penrod Drlg. Co.'s P. L. Mitchell 1, c nw nw 36-8n-7e, 4 mi s Riverfield town.	8-31-46	12-11-46	9471	9320- 9345	"Pilot" of Tuscaloosa sd; U Cre	F 28; 10 wtr; 1/16"	30.1		
		SOUTH LOUISIANA—New Oil Field									
Beauregard	Longville (Seale)	Barnsdall's Long Bell Lbr. Co. 1, c nw sw ne 1-6s-10w, 4 mi n Gordon fld.	10- 4 46	12-11-46	8430	8228- 8253	Cockfield sd; Eoc	F 293; 9/64"	49.3	Flt	Further development in area expected in 1947.
		SOUTH LOUISIANA—New Oil Pays									
Ascension	Sorrento	Pan American Prod Co.'s United Lds. Co. 21, 2550 n 1360 w of sec 15-10s-4e.	11- 3-46	12-17-46	3619	3385- 3401	Sd; Oligocene	F 59; 11/64"	27.8	SD	Important new sand.
Cameron	Black Bayou	Shell's Watkins 67, 990 s 120 w of nec 12-12s-13w	11-18-46	12-23-46	8601	8220- 8235	Sd; Oligocene	F 292; 9/64"	37	SD	Important new deep sand.
Iberville	St. Gabriel	Gravis & Mitchell's Natalbany 2-J, sec 12-9s-1e	8-13-46	12-26-46	12331	10808-10833	Marginulina sd; Olig.	F 209; 7/64"	39	Dp Dome	Important new deep sand.
St. Martin	St. Martinville	Continental's Fee 3-A, 57-11s-6e, 300 nw Fee A-1	10-31-46	12- 8-46	8056	4883- 4902	Miocene sd; Mio	F 112; 7/64"	30	Dp Dome	Shallow new pay. Other pays at 5500 & 9700 ft.
		SOUTH LOUISIANA—New Distillate Pays									
Iberville	Bayou des Glaise	Humble's E. B. Schwing et al 2-B, fr nec sect 86 go sly alg el 1400 th wly parallel to bl 2400 to lcn in 86-8s-8e.	2-28-46	12- 4-46	11890	11716-11726	Sd; Oligocene	F 48; 2 mln; 3/32"	55.3	SD	
Jeff Davis	Jennings, S.	Stanolind's S. Jennings Unit 8, 990 n 990 e of swc ne¼ 15-10s-3w	5-16-46	12-10-46	12034	10923-10936	Marginulina sd; Olig	F 45; .7 mln; 3/32"	45.5	Dp Dome	
		MICHIGAN—New Oil Field									
Oceana	Stony Lake	Carter Oil Co.'s Miller 1, ne sw sw 11-13n-18w, 18 mi nw Muskegon fld.	11- 1-46	12- 2-46	1631	1629- 1631	Traverse li; Devo	F 192	44.9	Ant; geol	Structure trap covering lge area indicated.
		MISSISSIPPI—New Oil Field									
Adams	Pine Ridge	Phillips Petroleum Co.'s Mrs. Vic Artman 1, 36-8n-2w, 6 mi ne Natchez	11- 1- 46	12- 5-46	5684	4200- 5625	Wilcox sd; Eoc	F 114; 1/32"	40.9	SD; seis	4th oil fld for county; fairly important but not spectacular.
		MISSISSIPPI—Oil Field Extension									
Adams	La Grange	Vaughey & Vaughey's R. Lee Parker 1, n&w sec 9-6n-2w, ½ mi w ext.	11-14-46	12-12-46	6246	6240- 6246	Wildox sd; Eoc	F 130; 1/8"	43.6	SD; seis	Unimportant.
		MONTANA—New Oil Pay									
Glacier	Cut Bank (Gas Area)	Union Oil Co.'s McGuinness Unit 7, sw ne nw 6-35n-5w		12- 3-46	3089	3084- 3089	Madison li; Miss	Sw 100	41		Oil pay plugged off and completed as gasser in upper sds to comply with drlg contract.
		NEW MEXICO—New Oil Field									
Chaves	Bitter Lake	DeKalb Agricultural Association's Nellie Lewis 1, c se sw 13-10s-25e	5- 8-46	12-13-46	5650	1247- 1275	San Andres li; Perm	P 7; 9 wtr	25	Ant; geop	Not commercial, but more shallow explorations due.
		OHIO—Oil Field Extension									
Morgan	Brush Creek	Industrial Gas Corp.'s H. H. Bankes 1, nw ne 20 T11N, R12W, Deerfield twp, 2 mi w ext.	9-12-46	12- 6-46	4033	4010- 4025	Clinton sd; Sil	Sw 25; .2 mln	....		Too small to encourage extensive drilling.
		OHIO—Gas Field Extensions									
Lorain	Ashland-Medina-Lorain	Harmon & McManaway's A. Shuster 1, ne se 2 Carlisle twp, 2 mi s Elyria	11- 4-46	12- 4-46	2330	2301- 2306	Clinton sd; Sil	.3 mln	....		Offset wells will be drilled.
Meigs	Stewart	J. D. Theis & G. D. Edwards' Coy C. Hawk 1, sw ne 17, Orange twp, 3½ mi e Hemlock Grove pl, 2 mi w Tuppers Plains village.	11-21-46	12-10-46	1615	1611- 1615	Berea sd; Miss	.2 mln	....		
Muskingum	Brush Creek	Four Way Oil & Gas Co.'s Wm .D. Miller 1, ne nw 36, Blue Rock twp, 3 mi ext.	9- 5-46	12-13-46	4692	4679- 4688	Clinton sd; Sil	4.3 mln	....		Makes entire e half of Blue Rock twp look good.
		OKLAHOMA—New Oil Fields									
Comanche		Creel & Lowe's Lowe 4, nw nw nw 7-1n-10w, 1½ mi s Lawton pl		12- 1-46	451	400- 405	Pennsylvanian sd; Penn	P 3	36	Str Trp; dr	Extremely shallow prod for area; of on significance
Okfuskee		J. E. Crosbie, Inc's Baker 1, sw nw ne 31-12n-7e, 2½ mi s Paden, S. pl		12-10-46	2916	2892- 2916	Prue sd; Penn	P 85	37	Str Trp; dr	In area previously prod in deeper Wilcox zn.
		OKLAHOMA—Oil Field Extensions									
Garvin	Maysville	Standard of Kansas' Eskridge 1, ne sw sw 18-4n-2w, ½ mi nw ext.		12- 6-46	7376	7362- 7372	Bromide sd; Ord	F 324	....	Ant; seis-dr	Extends new prod zn; pool also prod from Penn.
McClain	Lindsay, N.	Frank Russell's Little (Sandburr) 1, ne nw ne 22-5n-4w, ¾ mi ne ext.		12- 6-46	11517	10734-10806	Viola li; Ord	F 150	....	Ant; dr	
		OKLAHOMA—New Distillate Pay									
McClain	Wayne, S.W.	Magnolia Petroleum Co.'s Kitchens 1, nw ne nw 25-5n-2w		12- 5-46	6510	6496- 6510	Hunton li; Devo-Sil	F 50; 2 mln	60	Ant; dr	Opens distillate and gas prod in oil pool.
		OKLAHOMA—New Gas Field									
Okfuskee		Sunray Oil Corp. et al's Sam 1, ne ne sw 10-10n-9e, 2 mi n Bearden pl		12-10-46	3312	3056- 3070	Gilcrease sd; Penn	F 6.5 mln	....	Str Trp; dr	Opens gas area betw Bearden and Okemah pls; in area of prev activity when Wilcox sd pay was sought.
		EAST TEXAS—New Oil Field									
Smith		Delta Drilling Co.'s W. H. Boynton-Magnolia 1, 467 ft out nec 48.74-ac tr, or 80 ft ewl and 467 ft snl J. J. Smith sur., 2 mi e by n of Mount Sylvan fld.	10-21-46	12-17-46	7727	7516- 7527	Paluxy sd; L Cre	F 283; ¼"	33.3	Flt; geop	Top of pay occurs at same interval as Mount Sylvan fld disc, but 103 ft lwr structurally; wtr table is equally low. Comparatively thin pay; prod area speculative.
		EAST TEXAS—New Oil Pay									
Wood	Norman-Paul	Sun Oil Co.'s C. L. Clanton 1, 467 ft out of nec 86-ac lse, or 1100 ft nsl and 467 ft wel of Allen Davey sur, 1694 ft sw of Woodbine sd disc.	10-28-46	12- 3-46	5562	4833- 4858	Sub-Clarksville sd; U Cre	F 180; ¼"	33	Flt; geol	Extremely narrow ne-sw prod trend; on fault that accounted for Merigale fld, 2½ mi sw and same pay. Linking of 2 flds possible.
		EAST TEXAS—Oil Field Extension									
Leon	Flynn	Daniel Oil Co.'s Mrs. F. A. Cox 1, 467 ft from nw and sw lines of 220-ac lse, or 2775 ft fr ne and 2950 fr ne of John Scritchfield sur. 1½ mi w by s of disc.	8-15-46	12- 7-46	7444	7036- 7362	Woodbine sdy-sh; U Cre	F 73; 3% wtr; ¼"	33	D; geol	Prod fr thin streaks of broken sd similar but hgher structurlly than disc. Emphasizes prospects of expensive prod area, with av crude yld per ac below for Woodbine.

(CONTINUED ON NEXT PAGE)

		NORTH TEXAS—New Oil Fields									
Clay		R. C. Lipscomb et al's Hapgood 1-A, 467 ft out of nwc blk 78, Marion County School lds, A-308, 1½ mi se Hapgood pl.	11- 9-46	12- 23-46	5002	4975- 5002	Strawn sd; Penn	P 127	41	Ant; geol	Involves lenticular Strawn sd accumulation on sw flk of old Worsham struct. Sml prod area, but deeper pay probable.
Haskell	Humphrey-Chapman	Thos. D. Humphrey et al's E. O. Chapman 1, 467 ft out of nec blk 60, H. Tidwell sur, A-385, 3 mi ne Lawson fld.	9- 8-46	12- 4-46	5470	4070- 4082	Strawn li; Penn	P & F 469; 8% wtr.	40	Ant; geol	Passed up probable oil prod in Canyon. Extent of prod area speculative.
Wilbarger		Paradise Oil Co.'s W. T. Waggoner 1-I, 520 ft wel and 1045 ft nsl H&TC Ry. 11, blk 14, 1¾ mi n by e of prod.	11- 3-46	12- 3-46	4964	3147- 3155	Canyon li; Penn	F 480; 3/8"	38	Ant; geol	Failures to w and n tend to localize prod area. Most effective pay immediately below perforations.
		NORTH TEXAS—New Oil Pays									
Cooke	Grant-Modesett	Fred Snuggs and K. R. Neal's Mary Dennis 1, 1095 ft nsl and 957 ft ewl of Hugh Henderson sur, A-444, ¾ mi n of 1800-ft prod.	10-24-46	12- 6-46	2174	2168- 2174	Strawn sd; Penn	P 115	37	Ant; geol	Deepest of numerous lenticular sds prevailing in ar; pay will be erratic in performance.
Wilbarger	Harrold-Strawn	Big Six Oil Co.'s Schlaffke-Morris 1-A, (OWWO) 760 ft nsl and 737 ft wel H&TC Ry. 3, blk 14, orig completed 12-3-44 as Mississippi pay disc & PB.	11- 2-46	12- 3-46	5146	4230- 4236	Strawn li; Penn	F 516; 3/4"	45	Ant; geol	Prod performance warrants further development thru deepening of shallower wells and new tests.
		NORTH TEXAS—Oil Field Extension									
Montague	Bowers	Eason Oil Co.'s T. Yarbrough 1, 2150 ft fr M/N/N and 1500 ft fr M/W/E lines of F. J. Bellows sur, A-33, 1 mi s Bowers fld.	10- 7-46	12-14-46	4118	4054- 4068 4084- 4101	Strawn sd; Penn	P & F 328; 2% wtr	39.6	Ant; geol	Productive width of extension area probably narrow and may be erratic due to lenticular sd.
		WEST CENTRAL TEXAS—New Oil Field									
Shackelford		Street Investment Co.'s W. H. Green 1, 960 ft snl and 2040 ft wel of s½ T&P Ry. 49, blk 12, 1¾ mi n by e of prod.	11- 9-46	12-28-46	1206	1203- 1206	Cisco sd; Penn	P 35	40	Ant; geol	Near deep failure that revealed shallow pay.
		WEST TEXAS—New Oil Fields									
Andrews		Humble O & R Co.'s H. O. Sims 2, c ne ne PSL 25, blk A-39, 3⅛ mi nw Nelson fld; 2½ mi nw 7000-ft Yeso prod in New Mexico.	7-16-46	12-17-46	10535	10466-10531	Ellenburger dolo; Ord	F 704; ¼"	42	Ant; geol	Prod fr dolo, with 1st 58 ft of Ellen barren li. Most effective pay near base of perf; bottom of pay not determined. Ar will also produce fr 7300-ft Basal Permian.
oke	Jameson	Sun Oil Co.'s A. Jameson 1, c se sw H&TC Ry. 253, blk 1-A, 18½ mi w of Blackwell 1-well dormant pl.	9-25-46	12-13-46	6245	6225- 6245	Crinoidal li; Penn	F 168; ¼"	46	Ant; geop-geol	Geop indicate lge struct, with possible "gas cap". Oil unusually sweet, .04% sulphur and .002% salt; gasoline 69.7 octane No. Offset to explore Ellenburger, rated as good prod prospect.
		WEST TEXAS—New Pay									
Ector	TXL-Silurian	Superior Oil Co.'s J. E. Parker 7, 2005 ft ewl and 665 ft nsl of n½ of sw T&P Ry. 40, blk 45, T-1-S, most southerly prod; offsets Devonian & Ellenburger wells.	10-13-46	12-20-46	8535	8470- 8535	Silurian li; Sil	F 314; 7/16"	39.4	Ant; geol	Natural oil fl fr Silurian passed up by numerous Ellenburger completions to be produced after depletion of Ellen. Sil in this area may offer adequate crude yld per ac, due to wtr drive, to justify twin drlg, but ordinarily has low av yld in district.
		UPPER TEXAS COAST—New Oil Pays									
Galveston	High Island	J. W. Mecom's E. Ker Cade et al 6-A, 990 fr el 320 fr sl W. M. Hudson sur, 430-ac lease.	11-15-46	12-24-46	7359	7141—7159	Frio sd; Olig	F 371; 7/16"	34.1	SD	
Liberty	Hull	American Republic Corp.'s Dolbear 176, 2160 fr nl 1200 fr el 800-ac lse, J. Devore Lge.	10-26-46	12-14-46	6950	5084- 5104	Middle Yegua sd; Eoc	F 139; 40% 13/64"	41.8	SD	Important reserve addition.
		UPPER TEXAS COAST—New Distillate Pay									
Orange	Orange	W. V. Bowles' M. Granger Heirs et al 1, 125 fr nl 75 fr el 50-ac lse	11- 1-46	12- 6-46	5317	4725- 4735	Sd; Oligocene	F 6; 1 mln; 1/8"	60	SD	Unimportant.
		UPPER TEXAS COAST—New Gas Field									
Wharton		Floyd L. Karsten's J. L. Reits 1, 467 fr s&wl 80-ac lse, ETRR sur, 1 mi nw El Capmo, S. fld, 1¾ mi ne Daboval fld.	11- 7-46	12- 3-46	7200	6936- 6952	Frio sd; Olig	F 3.6 mln; ¼"		Flt	Some additional exploration expected.
		LOWER TEXAS COAST—New Oil Fields									
Bee		S. Donzis' Holzmark 1, 1380 at ra fr nwl 1435 at ra fr swl J. A. York sur, 330 fr nwl 1841 fr nely/nel 282.52-ac lse, 1 mi se Foley fld, ¾ mi sw Holzmark oil disc, n of Holzmark gas prod.	9-22-46	12- 1-46	3540	3490- 3524	Hockley (Jackson) sd; Eoc	P 3			No importance.
Jackson		Blanco Oil Co.-Al Buchanan's John Lind 1, 390 fr nl 1870 fr el J. Heard sur, 125-ac lse, 1 mi se Stewart fld, 1 mi sw Ganado fld.		12-22-46	7415	7059- 7060	Frio sd; Olig	F 45; 50% wtr; 3/32"			Unimportant.
Nueces		Rand Morgan's Fee A-1, 849 fr sl 2098 fr el 411-ac lse, sect 5 Richard King Farm lots, 1 mi ne Richard King fld.	10-28-46	12-15-46	5848	5604- 5609	Frio sd; Olig	F 41; 3/32"			May prove to be extension to Richard King fld.
		LOWER TEXAS COAST—New Oil Pays									
Brooks	Pita	Humble's D. J. Sullivan 6-B, 3350 n of sl of 8680-ac lse, San Antonio de Encinal gr.	11-20-46	12-30-46	8369	7766- 7780	Frio sd; Olig	F 244; ⅛"	38.3		Excellent new pay for this 1945 disc.
Jim Wells	Tijerina-Canales	Texas Co.'s H. C. de Tijerina 38, 7245 w of el sur 270, 1787 s of nl 3000-ac lse, A. Canales sur 360.	11-16-46	12-27-46	7472	5990- 6000	Frio sd; Olig	F 73; 2% wtr; 1/32"	51.9	Flt sd lense	
		LOWER TEXAS COAST—New Oil Pay									
Nueces	Minnie Bock, N.	Atlantic's Lee M. Dugger 1, 1787 fr el 467 fr nl 320-ac lse and sect 53, G. H. Paul sbdn—Driscoll Rch, J. L. Herrera gr.	10-27-46	12-19-46	8510	6138- 6143		F 120; 7/16"	39.6		
		LOWER TEXAS COAST—New Distillate Pay									
Brooks	Alta Mesa, E	Standard of Tex.'s B. G. de Garcia lse 1-6, 1400 fr wl 3100 fr sl 2161-ac lse 1, La Encantada gr.	10-20-46	12-18-46	6740	6246- 6258	Frio sd; Olig	F 52; 2.3 mln; ¼"			
		LOWER TEXAS COAST—New Gas Field									
Refugio		Clymore Co.'s John L. Zarsky 1, 650 ne of swl 304-ac lse 2904 w of el lse and and sw¼ sect 46 of Johnson & Pugh sbdn of Bonnie View Rch, 1 mi n La Rosa fld, 1¾ mi sw La Rosa, N. fld.		12-27-46	7035	4926- 4937		50 mln			Little importance, probably on flk of La Rosa structure.
		LOWER TEXAS COAST—New Gas Pay									
San Patricio	Midway	F. M. Boykin, Jr.'s H. H. Hutto 4, 467 fr wl 1160 fr nl 160-ac lse, nw¼ sect 81, G. H. Paul sbdn CFP Co. Lds.	12- 1-46	12-15-46	3660	3630- 3638		20 mln		Sd lense	
		SOUTHWEST TEXAS—New Oil Fields									
Starr		Daubert-Achning's M. Villareal 1, 330 fr s&wl n 203-ac of blk 5, Sta. Cruz gr, 6600 se Kelsey fld, 7500 e of Kelsey, S, 5700-ft sd disc.	10-27-46	12- 2-46	5988	5954- 5967	Frio sd; Olig	F 152; ⅛"	41		May prove to be extension of Kelsey fld.
Starr		V. F. Neuhaus's (was Tarver & Staggs) Loreto Canales 1, (OWDD) 498 fr se&nwl 4700 fr swl tr 3-B out of sh 2, Parcel "B" Sacatosa gr, 262.18-ac lse.	11-20-46	12-20-46	1715	1700- 1714		P 2	42		Minor importance.
		SOUTHWEST TEXAS—New Oil Pay									
Starr	Kelsey, S	J. O. Clark, Jr.'s Margarita G. de Juarez 1, 467 fr n&wl 151.61-ac lse Sta. Teresa gr, 2250 se Gonzales 2-A, deep sd disc in fld.	10-27-46	12-28-46	7272	5364- 5372 5869- 5876	Frio sd; Olig Frio sd; Olig	F 144; 7/64" F 124; 7/64"	51 42	Ant	New producing area will probably have many pay sds. Both new pays.
		SOUTH CENTRAL TEXAS—New Oil Field									
Guadalupe		Wiegand Well Servicing Co.'s L. A. Anderson 1, 330 fr nwl 1000 fr swl 101-ac lse in Harriet Cottle sur, ½ mi s Luling fld.	11- 5-46	12-15-46	2050	1850- 2050		P 2			No importance.

[1] Character of producing formations abbreviated thus: ch, chalk; dolo, dolomite; li, limestone; sd, sandstone; sh, shale; ser, serpentine; cgl, conglomerate. Ages of formations abbreviated thus: Pleis, Pleistocene; Plio, Pliocene; Mio, Miocene; Olig, Oligocene; Eoc, Eocene; U. Cre, Upper Cretaceous; L. Cre, Lower Cretaceous; Jur, Jurassic; Tri, Triassic; Perm, Permian; Penn, Pennsylvanian; U. Miss, Upper Mississippian; L. Miss, Lower Mississippian; Devo, Devonian; Sil, Silurian; Ord, Ordovician; Cam, Cambrian. [2] Barrels of oil per day (24 hr. rate), flowing (F), pumping (P), swabbing (Sw), or bailing (B); or million cubic feet of gas daily open flow capacity; size of choke given in inches. [3] Type structure abbreviated as follows: Ant, Anticline; D, Dome; Fld, Fold or Folded; Flt, Fault or Faulted; M, Monocline; N, Nose; SD, Salt Dome; Str trp, Stratigraphic trap; Syn, Syncline; Ter, Terrace. [4] Method of discovery abbreviated as follows: cd, core drilling; dr, drilling; geol, geology; geop, geophysics; grv, gravity meter; ran dr, [illegible]; sub, subsurface geology; sur, surface geology; tb, torsion balance.

Murray Rubber

"mainspring" of the new

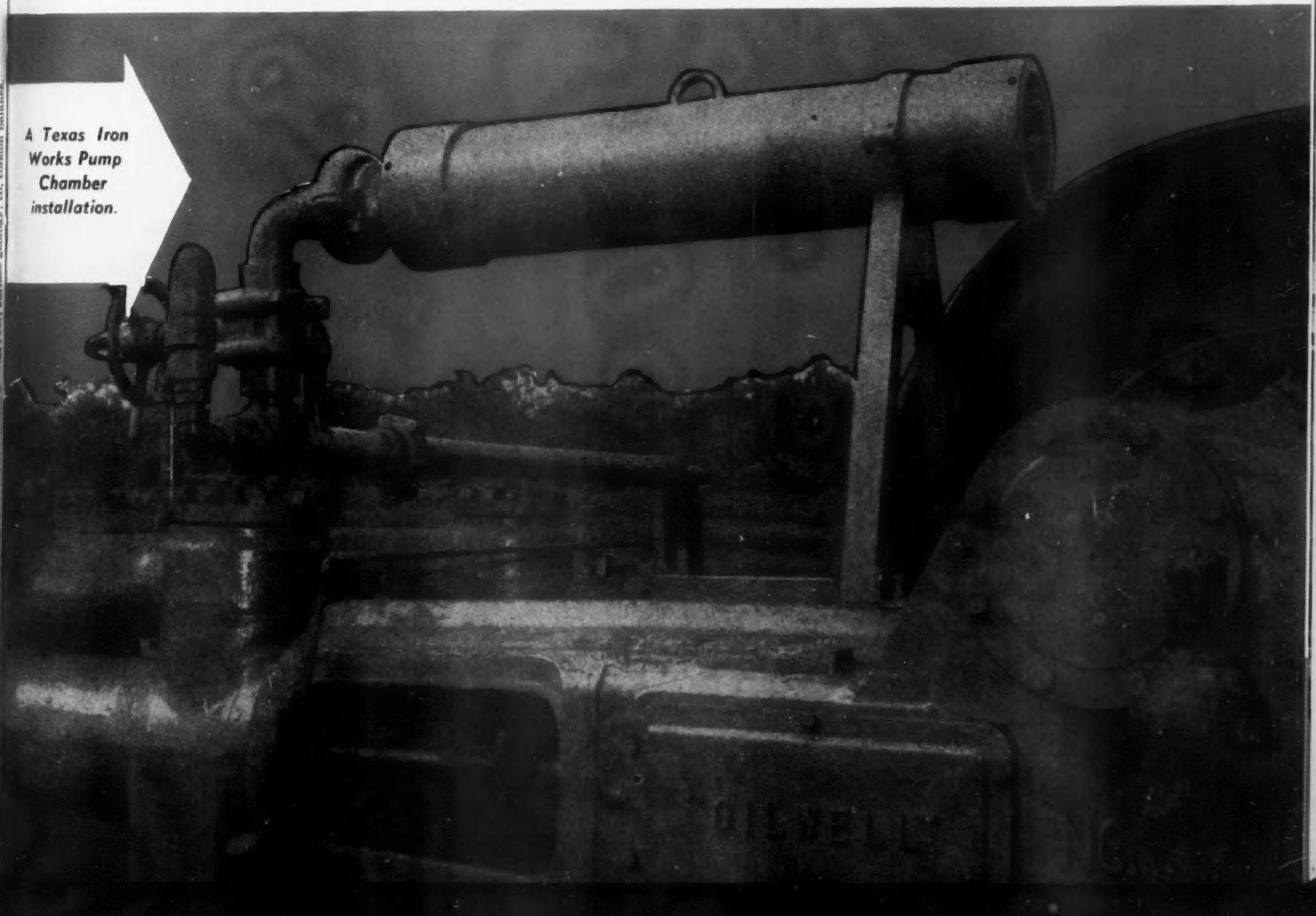
TEXAS IRON WORKS PUMP CHAMBER

The Texas Iron Works Pump Chamber is designed to eliminate harmful pump pulsations from mud lines and rotary hose. Its development is indicative of the fine results that can be achieved by co-ordinated engineering effort on the part of the equipment manufacturer and Murray Rubber Company.

The rubber component—probably the most difficult mechanical design involved in the Pump Chamber—was furnished by Murray, including design and manufacture of the mold and steel inserts. A special compound of Hycar synthetic oil-resistant rubber was selected to provide maximum efficiency and long life. The complete rubber part (see left) measures approximately 9¾" OD by 5' long. It is designed to seal nitrogen under 500 lbs. pressure in the chamber and "breathes" or expands and contracts with each stroke of the pumps to absorb the pulsations. Test runs under actual field conditions indicate both sound mechanical design *and the right rubber component for the job!*

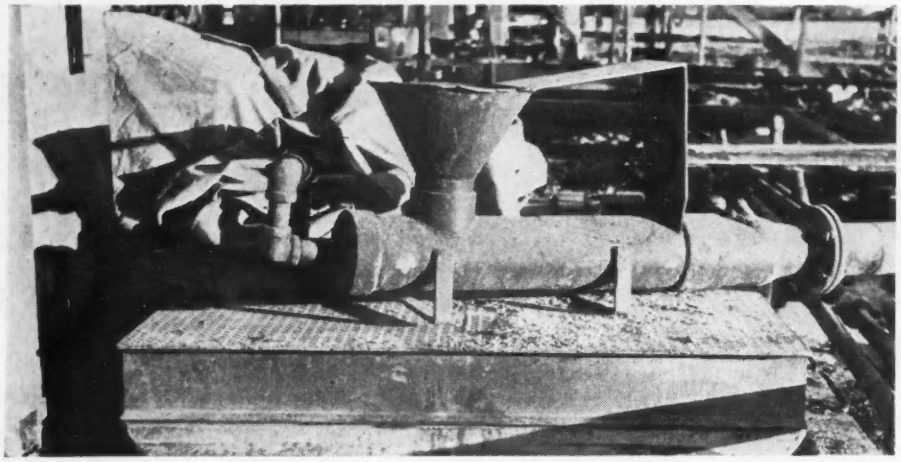
Equipment manufacturers are invited to make generous use of the Murray engineering staff, modern rubber manufacturing plant, and tool and mold division which specializes in the production of customers' molds, inserts, dies, etc.

MURRAY RUBBER CO., HOUSTON, TEXAS



A Texas Iron Works Pump Chamber installation.

Mud Mixing Unit Combines Safety and Convenience



MUD MIXING

One contractor finds a special skid for the mud-mixing unit of value in preventing accidents to personnel. The skid is mounted on the usual pipe runners, with a frame built up of six-inch I-beams supporting a non-skid steel floor large enough to afford ample working space around the hopper.

The hopper and feed pipe are carried on short steel legs, welded to the steel floor of the skid, with a flange union in the line which permits separation for handling between locations. A steel shelf, bracketed to the pipe, serves as bag support for metered feed of material into the hopper.

The steel plating, being provided with embossed non-skid surface, is safe even if the surface is coated with wasted materials. The platform may be hosed down without affecting its safety features, rapidly draining off to afford firm grip for shoe soles.

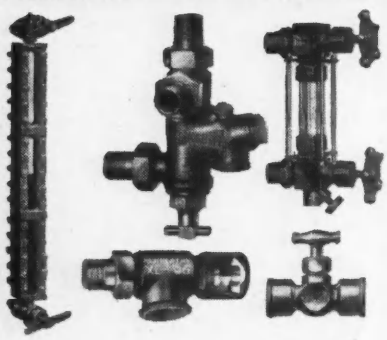
Ramp Fits Many Rigs

"V" RAMP

A ramp that can be adapted to nearly any height differential between derrick floor and pipe walk is used to good advantage by one drilling company. All steel, the ramp consists of a rectangular sheet of ½-inch steel plate 84 inches wide by eight feet long and surfaced on the upper side with four-inch planking. The back side is reinforced with lengths of five-inch pipe placed at 18-inch centers. Both top and bottom ends of the ramp are tapered off with additional sections of sheeting as illustrated, the upper end being secured to the derrick floor to prevent slipping of the unit.

Such a rack embodies several advantages over commonly used ramps. It is portable, being removed and set up with a minimum of custom construction work at each location; its all-steel construction leaves little to be desired as to strength for such a ramp; and the plank facing supplies cushioning when tool joints and other materials are slammed against it while being pulled up into the derrick.

PENBERTHY
QUALITY
PRODUCTS



Penberthy liquid level gages of various types—injectors—ejectors—all so widely used throughout the oil industry because they have always been dependable under the most severe service conditions.

All are of rugged construction and made by an organization with 57 years experience in the manufacture of quality products.

See Pages 3126 to 3131 Composite Catalog

PENBERTHY INJECTOR CO.
DETROIT, MICH. Canadian Plant WINDSOR, ONTARIO

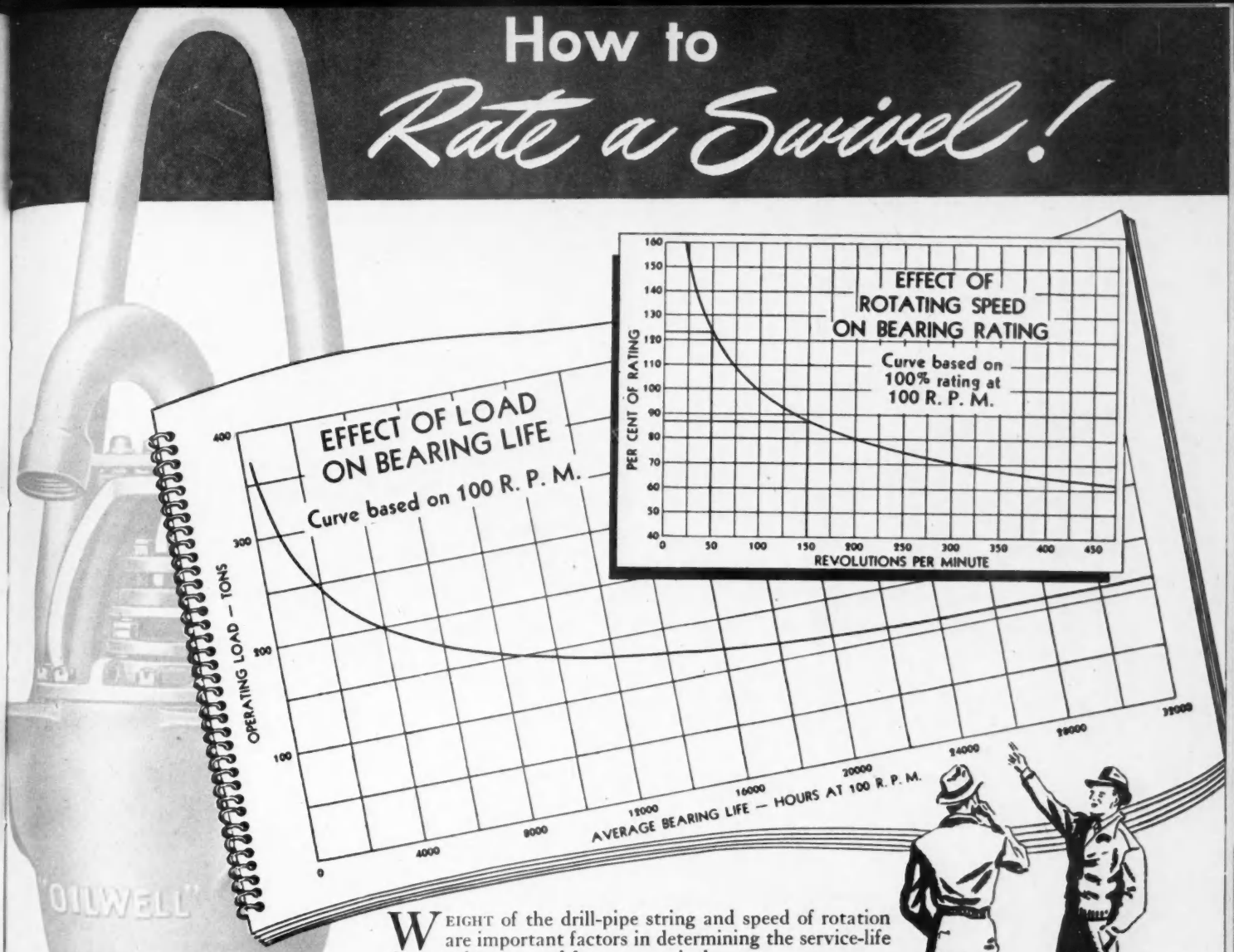
Nipples Facilitate Rigging Of Suction Hose

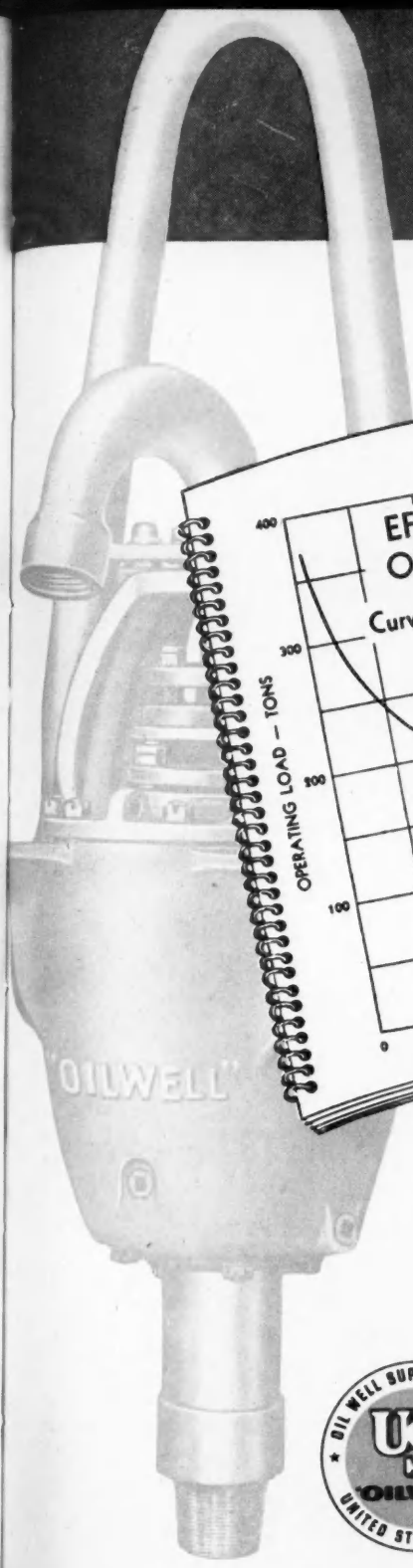
SUCTION LINES

In order to support a long, or weakened mud suction hose, thus preventing it from becoming damaged due to wrinkling or concentration of wear in one or two places, it may be lashed to a rigid length of light pipe placed between the support on the suction end of the hose, and the point where it connects into the pump. To simplify such a hook-up in the field when necessary, one contractor drilling in a Wyoming field finds it advantageous to weld to the two end fittings a pair of short nipples similar to the one shown.

By using 2½-inch nipples, for example, a two-inch pipe will fit inside and be held without difficulty in spanning the interval. Light lines or straps then may be wrapped around the support and the suction hose elevated and held in the proper position. The installation of the nipples takes only a few minutes of a welder's time, and even if not needed, as in the case illustrated, the short fittings do not hinder other normal work about the equipment.

How to *Rate a Swivel!*


EFFECT OF LOAD ON BEARING LIFE
Curve based on 100 R. P. M.
OPERATING LOAD — TONS
AVERAGE BEARING LIFE — HOURS AT 100 R. P. M.
EFFECT OF ROTATING SPEED ON BEARING RATING
Curve based on 100% rating at 100 R. P. M.
PER CENT OF RATING
REVOLUTIONS PER MINUTE



WEIGHT of the drill-pipe string and speed of rotation are important factors in determining the service-life that can be expected from any swivel.

THESE RATING CURVES show you why swivels which have bearing load ratings sufficiently in excess of anticipated operating loads prove more economical in operation and give longer trouble-free performance than do swivels operated at, or near, their maximum load capacity.

"Oilwell" Swivels . . . are designed in four sizes to give you the capacity you should have to meet different drilling requirements. Regardless of size, your "Oilwell" Swivel embodies field-proved design principles which result in minimum friction loss and bearing wear.

THEIR ABILITY to perform satisfactorily on so many of the world's deeper wells is convincing proof that "Oilwell" Swivels can be depended upon to give long, trouble-free service and assure you of outstanding operating economy on every drilling job.

CHECK UP CAREFULLY before selecting your next swivel. "Oilwell" representatives will be glad to help you make a thorough analysis of your operating conditions and select the swivel indicated to safely meet your drilling requirements.

"Oilwell" Swivel Number	*Dead-Load Rating-Tons*	**Swivel Rating Recommendation-Feet*
No. 60-C	100	5,700
No. 100-C	200	8,500
No. 150-C	300	12,500
No. 300-D	400	17,000

***Recommended for drilling depths as indicated with 4½" Drill Pipe at 100 R.P.M.**

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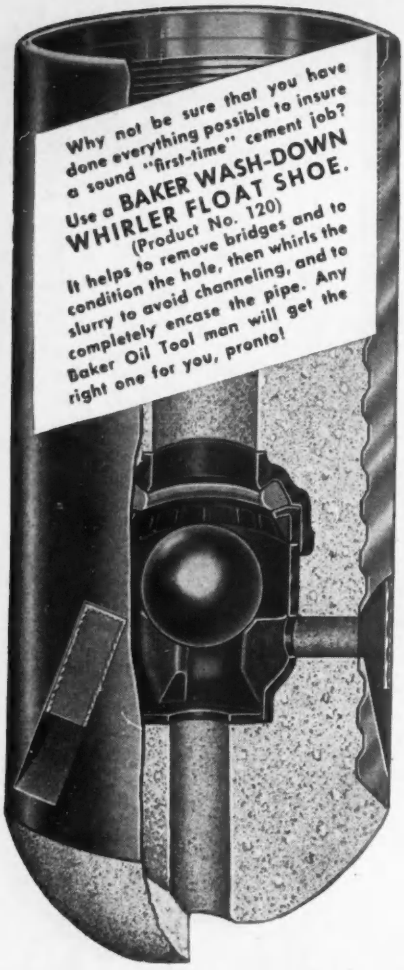
UNITED STATES STEEL

"OILWELL"


Why not be sure that you have done everything possible to insure a sound "first-time" cement job?
Use a BAKER WASH-DOWN WHIRLER FLOAT SHOE.
(Product No. 120)
It helps to remove bridges and to condition the hole, then whirls the slurry to avoid channeling, and to completely encase the pipe. Any Baker Oil Tool man will get the right one for you, pronto!

Increase RESERVES AND PROFITS BY

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EXPERIENCED PRACTICAL CONSULTING
REPRESSURING AND WATER FLOODING
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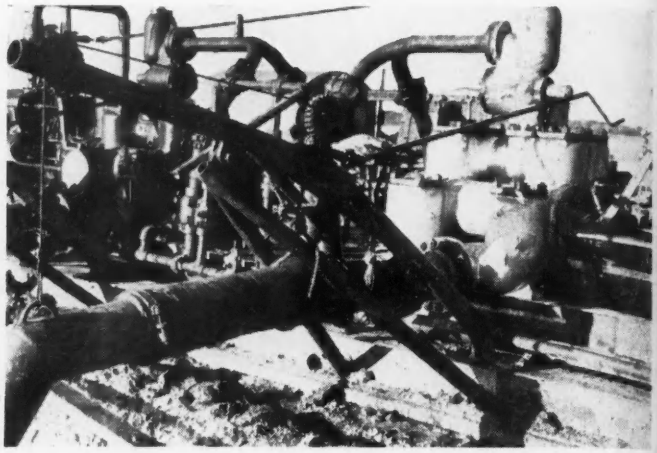
- Water Treating Plants
- Core Analysis
- Estimate of Results
- Valuations
- Supervision

PETROLEUM ENGINEERS
CABLE & STINE
WICHITA FALLS, TEXAS

Worm-Gear Drive Eases Suction Hose Adjustment



SUCTION LINES

The worm-driven winch is especially adapted for use in regulating the location of the suction hose in the mud pit, as it furnishes the desired leverage for one-man setting, with the added advantage of being irreversible. The worm drive, unlike a straight gear reduction, does not require a dog or other outside locking device.

To further simplify the adjustment of the suction hose level, one contractor extends the crank on the winch so that the adjustment can be made from the throttle side of the pump—instead of from an insecure perch on a plank thrown across the mud pit. A bearing, conveniently mounted on the fluid end of the pump, carried the crank extension shaft near the point where the crank is affixed, a universal joint at the end of the short worm stub compensating for variations in alignment between stub and extension as the shear leg carrying the suction is raised or lowered.

One of the pins in the universal joint is a bolt, allowing removal of the extension in case it interferes with reconditioning work on the pump.

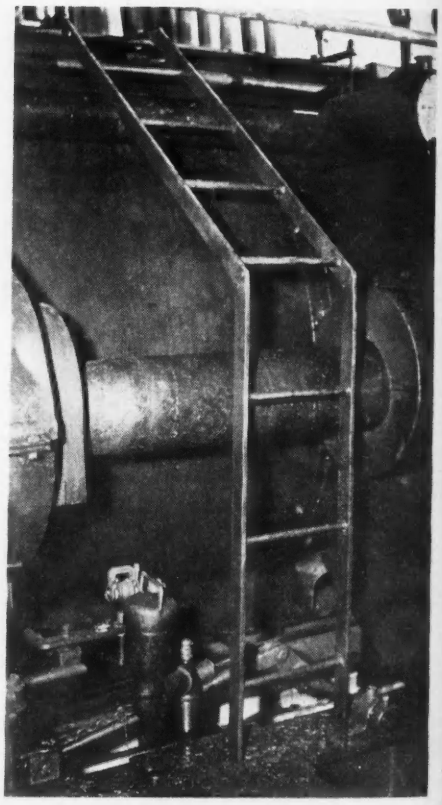
Simple Step Ladder Adds Safety Feature To Draw Works

DRAW WORKS

Provided to afford a safe method of reaching the upper side of the draw works, the welded ladder which one contractor sets over the shaft in back of the unit eliminates the accidents caused when crewmen use parts of the frame, projecting bolt ends, and other makeshifts as a ladder.

The welded ladder is made with an offset to clear the shaft of the draw works, with the first three steps vertical, the others on a slope to reach the top of the housing. Lugs welded to the runners at both top and bottom, with corresponding tapped holes in the frame of the draw works, enable the ladder to be secured with four heavy cap screws—easily removed when work must be done on the unit behind the ladder.

The ladder is set far enough away from the draw works shaft to prevent contact between the crewman's shoe and shaft when the operator is standing on the rung directly opposite the shaft.

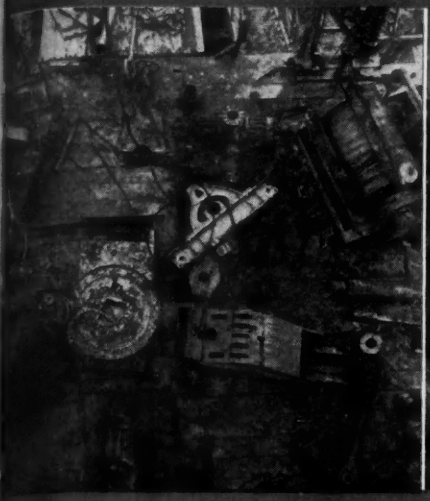


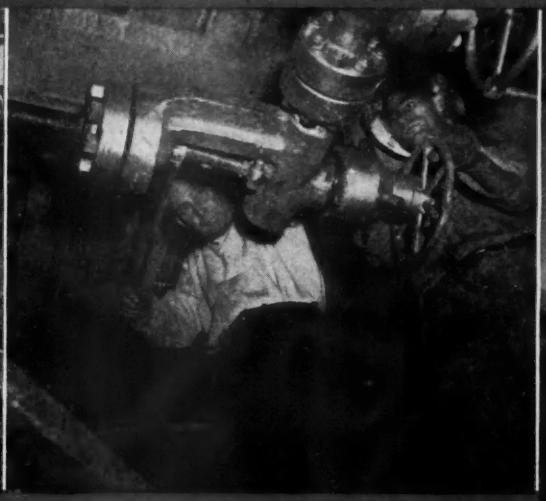
$5.00 is paid for each illustrated acceptable contribution. Mail to The Editor, THE OIL WEEKLY, P. O. Box 2608, Houston 1, Texas

Another safety measure—the derrick is stripped of equipment as a safeguard against heavy objects falling on and damaging Christmas tree.

Cameron's Fox Moses and a crew member inspect the Cameron Christmas tree "flow wing" and choke as a final check before washing operations begin.

An over-all view of the Cameron Christmas tree, with wash line hooked-up and extension wrenches installed on master and wing valves for remote operation.

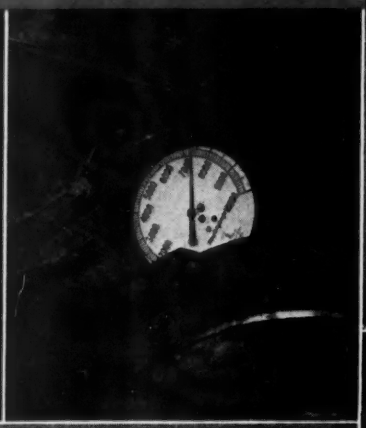




. . . the well begins flowing, its pressure jumps to [illegible] lbs. . . .

. . . soon climbs to 6600 lbs. as the mud column is replaced with wash water . . .

. . . and finally stops at 7300 lbs. (not a record but an unusually high pressure).



PICTURES on these pages high-light the major steps in completing another notably high pressure well, utilizing a Cameron 15,000 lb. test Christmas tree manifold. And again, Cameron field men, specially trained for pressure control work and the use of Cameron completion equipment, demonstrated the wisdom of maintaining such a field service organization to assist the operator in the completion of "problem" wells. This South Jennings well joins the long list of extremely high pressure wells finaled in recent months with the aid of Cameron equipment: Holland No. 1 in the Blue Lake Field, Brazoria County, Texas, with tubing pressure of 8200 lbs.; Elizabeth Regan No. 3 in the Egan Field, Acadia Parish, Louisiana, with tubing pressure of 8000 lbs.; Irby No. 1 in the Berclair Field, South Texas, with 6885 lbs.; and others.

This broad experience in pressure control, together with a complete line of well heads and Christmas trees ranging from 4000 to 15,000 lbs. test pressure, are available to operators everywhere. Contact your nearest Cameron representative (see below) for a recommendation and complete details on the Cameron equipment for your particular needs.

CAMERON IRON WORKS, INC.

P. O. BOX 1212, HOUSTON, TEXAS

Export: 74 Trinity Place, New York, N. Y. West Texas: Odessa (Telephone 1710). Oklahoma: 310 Thompson Bldg., Tulsa. California: 1442 Hayes Ave., Long Beach (7-2036). Wyoming: 356 N. Wolcott St., Casper. North Louisiana: Bossier City (P. O. Box 425).

And another high-pressure well is safely "in," joining the long list of successful Cameron completions.

Why Make Hard Work of Handling Cable Reels?

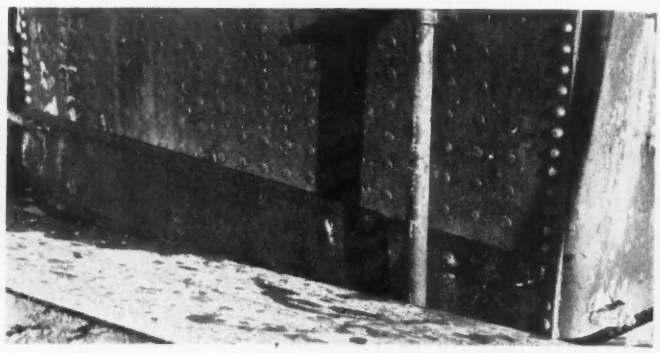
Simplex No. 322 Cable Reel Jack. Capacity 10-tons, lift 13¾", height 29". For reels 36" to 84" in diameter.

With a pair of Simplex Reel Jacks, heavy reels are lifted easily, and the wire rope is paid out safely and rapidly. Where ground is uneven, use No. 322's. Large braced right and left "T" bases prevent rocking, and permit operators to see each other to coordinate jacking at both sides.

Simplex
LEVER SCREW - HYDRAULIC
Jacks

Templeton, Kenly & Co.
Chicago (44), Illinois
Better, Safer Jacks Since 1899

Boiler Draft Controlled By Fire Box Board

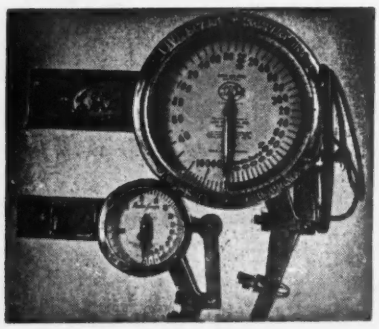


BOILER OPERATION

Control of the air under the firebox of the boiler battery is usually laid out so that the draft will enter from the front, and thus prevent cooling of the tube sheet. Where the boiler setting itself does not provide stops along the sides of the firebox, earth is frequently used, being piled up to a height which will cover the mud ring. This practice hastens corrosion of the boiler shell, and also chills the mud ring and introduces unequal expansion stresses.

One contractor provides sheet steel draft "boards," long enough to extend the full length of the firebox, and equipped with handles which will facilitate their placing. These units are simply laid against the boiler and set into the ground far enough to hold them firmly in place. They shut off excess air, without robbing the mud ring of heat, and—if exposed to corrosive soils—may be coated with rust-resistant materials without fear of their being altered by heat. If the ground is uneven at the boiler site, the sharp edge of the board will compensate for the irregularity, and form the desired closure against the boiler itself.

LINE SCALES



20 MODELS to choose from

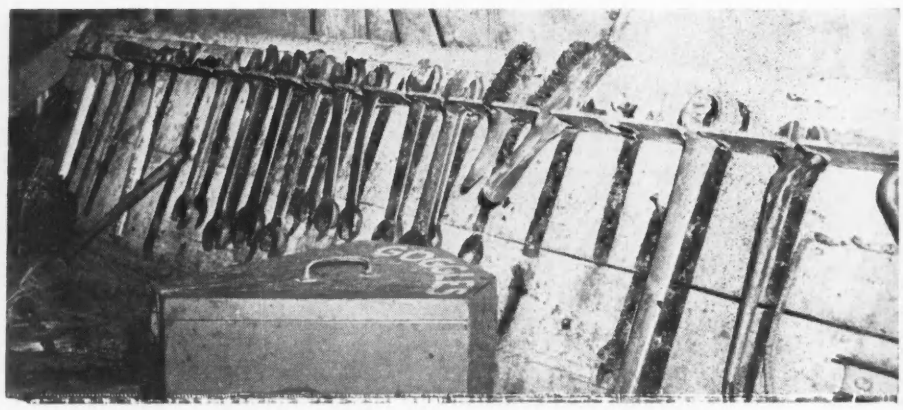
(Above) Super 500,000# capacity, 14" dial. (Below) Packer Special, Capacity 40,000#, 6" dial. 18 other models for every drilling, well servicing, or work-over need.

With a Line Scale you know the pull on the line, and the weight on the bit in pounds. Accurate, sensitive, rugged and economical.

Line Scales are dependable, even in areas of rapid temperature changes. Repeated tests prove the accuracy of Line Scale readings under all working conditions.

LINE SCALE CO., Inc.
Phone 2-1765, 907-11 SE 29th St., Box 4245
Oklahoma City, Oklahoma

Permanent Rack Minimizes Loss Of Hand Tools



TOOL CARE

An improvement over the pairs of nails driven into the sloping back-board of the work bench for storing wrenches and other hand tools requires only a little of the welder's time and a short section of 2x2-inch angle iron—this latter bolted to the back-board after completion.

The web of the angle iron which will be in the horizontal position when bolted is cut out with the torch at frequent intervals to form sockets and notches into which wrenches and tool handles may be dropped, the openings being large enough to receive shanks, yet prevent the head of the wrench from slipping through.

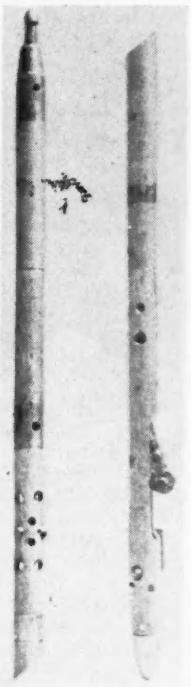
The usual outline of the tool, painted on the back-board behind the notches designed to accommodate special tools, speeds the sorting of the units and enables a quick check to be made of missing tools. Unlike the nail supports, the angle-iron bracket remains in place despite hard usage and is never "borrowed," as the nails sometimes are when a few are needed for some rig-floor repair. Tools and rack may be moved intact with the tool shed.

NEW EQUIPMENT
LITERATURE

FOR ADDITIONAL INFORMATION, USE MAILING CARD INSERTED OPPOSITE THIS PAGE

1—Tubing Caliper

Designed to measure the average inside diameter of tubing to determine the degree of corrosion is this new tubing caliper. Entirely mechanical, it provides a continuous record of inside tubing diameters from any predetermined depth up to the surface.



Left: Upper section. Right: Lower section.

The tool is run in the hole on a standard measuring line through a high-pressure lubricator. The measuring elements are three hardened balls forced against the inside tubing wall. Any variation in the position of these rollers causes a movement in the recording stylus through a mechanical linkage.

The variations in inside diameter are recorded on rolls of very thin, shim brass, furnished in 50-foot rolls. Recording scales from one inch per foot depth to one inch per four feet are available. Recorded along with the graph is a reference base line, calibrated to the manufactured internal diameter of the tubing, thus permitting a constant reference to original I.D. which indicates any pitting or corrosion areas in the tubing. Each joint is also clearly indicated.

Movement of the brass record under the stylus is made possible by a small wheel rolling against the inside tubing wall. It is non-reversing so that the record will not begin until the tool is moved upward in the tubing. The measuring balls are set back into the tool until it begins its upward travel, at which time they are released and pressed against the tubing wall.

A set of jars is incorporated in the upper section of the tool to aid in retrieving it from the well in case the tool becomes stuck.

Halliburton Oil Well Cementing Company, Duncan, Okla.

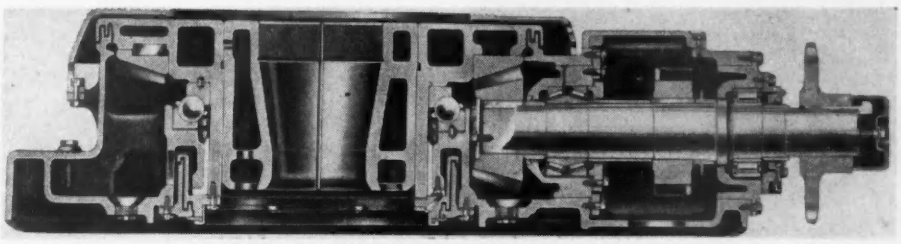
(Check item 1 on postcard for more information.)

2—Rotary

For drilling to depths down to 13,000 feet at maximum rotating speeds of 500 revolutions per minute, is a new, compact rotary recently introduced. The rotary has low center of gravity, minimum weight, labyrinth seal, three-way selective pinion shaft locking device, lubrication, and table bearings.

Labyrinth seal is provided at both top and bottom of the base enclosure. A flexible sealing ring attached to the bottom of the turntable hold-down ring is added to further safeguard against the entrance of mud when excessive pressures blow mud from the well. This pliable composition sealing ring is designed with a flexible lip which will bend upward and form a tight seal against the oil retainer ring, thereby keeping the oil clean and protecting the working parts. A selective three-way pinion shaft locking device makes it possible to lock the rotary against clockwise, counter-clockwise, or all rotation as desired. The pinion shaft is mounted at the pinion end in two heavy-duty tapered-roller bearings, and at the sprocket end in a heavy-duty straight roller bearing.

Ample lubrication is provided by means of a combination circulating oil-bath effective at all speeds, and grease lubrication of pinion shaft bearings. A unitized pinion shaft assembly consists of pinion bearings, lock wheel, tachometer drive sprocket, and spacers locked end-wise on the shaft in such a manner that either bearing assembly can be removed without stripping the entire shaft. A built-in tachometer drive sprocket is standard equipment.

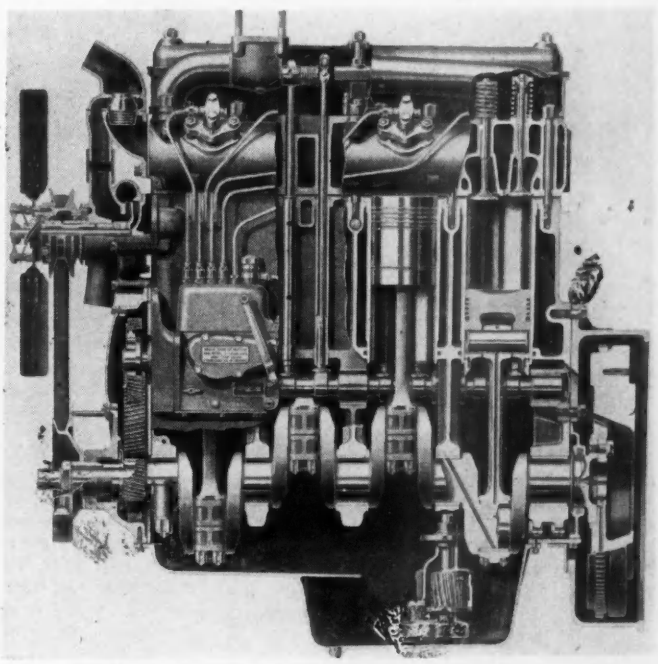


Oil Well Supply Company, 2001 North Lamar Street, Dallas.

(Check item 2 on postcard for more information.)

3—Power Unit

Start of production on a 125-horsepower model UD-18A power unit and a 76-horsepower model UD-14A has been announced. Both power units are heavy-duty four-cycle diesels with the same bore and stroke. The UD-18A has six 4¾"x6½"-inch cylinders, and the UD-14A has four cylinders. These new models have been designed to deliver in full measure considerably more power without increase in weight over the UD-18 and UD-14 models which they replace.



A new cylinder head arrangement, improved nozzles, and redesigned precombustion chambers are said to give them high compression and high efficiency in converting fuel energy into low-cost power. The exhaust manifold is located on the injection side of the engine, away from the intake manifold, since the starting system does not require preheating of in-coming air in cold weather. As a result, in-coming air is kept cooler.

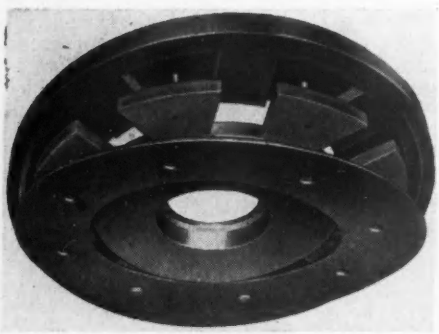
An integral gasoline starting system has been retained which permits the engines to be started in the same manner as an ordinary gasoline engine. After a brief direct-flame cylinder warmup, movement of a single lever changes the engine from the gasoline starting cycle to four-cycle diesel operation with compression ignition. Both models are available for many different kinds of jobs in a variety of equipment combinations from engines to complete power units ready for operation.

Industrial Power Division, International Harvester Company, 180 North Michigan Avenue, Chicago 1.

(Check item 3 on postcard for more information.)

4—Pipe Wiper

Three basic pieces form a new, compact pipe wiper. The top, or cover, and the bottom ring are of treated rubber and are rigid enough to exclude the necessity of any metal reinforcing ring.



The easily-replaced self-locking core is made of extremely live rubber. Full-size tool joints, protectors and drill collars can be pulled through the pipe wiper without injury to any part. The three basic parts are secured into a compact unit with eight brass tubular rivets. When replacing the core, these rivets are removed and installed in a short time on the rig floor without the need of any special tool.

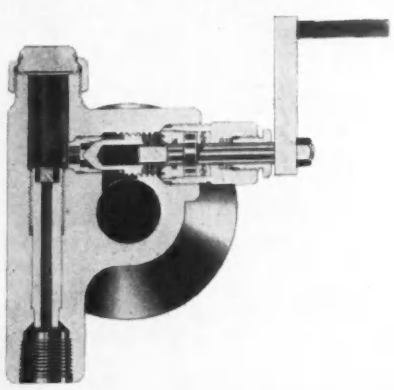
The exclusive dove-tail feature of the core provides a self-locking unit that exerts no pulling strain on the rivets. The offset portion of the core provides a double wiping action. Drilling mud is removed from the pipe by the lower lip, leaving only moisture which is taken off by the upper lip of the core. This moisture has a tendency to lubricate and cool the rubber to prolong its wear. The complete wiper is resistant to chemicals and oil base muds. It is made in all sizes, from 12 to 19 inches outside diameter, and from 2⅜ to 6⅝ inches inside diameter.

Target Equipment Company, 108 Northwest Second Street, Oklahoma City.

(Check item 4 on postcard for more information.)

5—Flow Control Unit

Designed for oil wells operating under proration and low-volume gas wells is the new JE flow control unit. Machined from a one-piece casting, this well head device is said to perform the functions of a Christmas tree cross or tee, wing valve, adjustable or positive choke and the upper bottom-hole pressure connection adapter. It eliminates the flanged connections between the tee and the bottom-hole test adapter, between the tee and the wing valve and between the wing valve and the choke.



The opening through the valve seat is one inch in diameter and the unit is therefore adapted to flow volumes up to those restricted by a ¾-inch choke. For chokes ¾-inch or smaller in size, the point of pressure drop and high flow velocity will remain at the choke. For high-volume gas distillate wells or other high-volume wells such as those operated through 2 one-inch chokes, the use of a conventional full-opening wing tree is recommended. Because of its relatively light weight, the JE flow control unit may be carried in an automobile and installed by two men.

Oil Center Tool Company, 1912 Airline Road, Houston.

(Check item 5 on postcard for more information.)

6—Needle Valve

A precision needle valve has been designed for gauge and metering lines, instrument lines, test lines, bleeder lines, and other high-temperature, high-pressure, or corrosive services. Union nut construction is said to prevent dangerous blowouts during opening or repacking and also provides an extra deep stuffing box. A metal-to-metal line seal at the bonnet eliminates the use of gaskets.

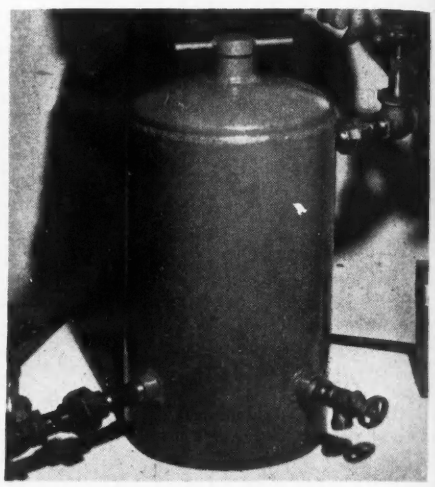
The new valve combines positive shutoff with micrometer throttling action. The ball seat, which provides a positive line seal for complete shutoff, has a tapered tip, actuated by fine stem threads, which permits control of flow and also ease of operation at all pressures. The entire valve stem, including ball seat and tapered tip, is constructed of specially heat-treated and work-hardened steel, ground and polished, to eliminate possible galling and wire drawing. The valve body is machined from solid rolled stock. They are available in both globe and angle types in sizes from ⅛-inch to ¾-inch for working pressures up to 3000 pounds per square inch and temperatures up to 750° F.

Kerotest Manufacturing Company, Pittsburgh 22.

(Check item 6 on postcard for more information.)

7—Chemical Feeders

A new series of Micromet feeders has been developed for the chemical treatment of hot or cooling water systems to eliminate corrosion or scale troubles. Simple in design and easily installed, this new series of chemical feeders has a treating capacity of 3000 gallons to 1 million gallons of water treated per month. The series consists of large-type feeders holding 20, 50 and 100 pounds of the chemical in one charge. The chemical dissolves at the rate of 25 percent per month, so that only this amount need be renewed each month.



The amount of chemical and the size of feeder required for any particular application depends upon the type of water trouble encountered and the amount of water to be dissolved. For corrosion, the 50-pound feeder is claimed to handle up to 150,000 gallons per month. For hard waters producing lime scale, it is said to handle up to 300,000 gallons monthly. The larger feeder will handle up to 1 million gallons of scale-producing water per month. The manufacturers claim that this treatment in no way affects the taste or potability of water used for drinking or cooking.

Calgon Incorporated, Hagan Building, 323 Fouth Avenue, Pittsburgh 30.

(Check item 7 on postcard for more information.)

8—Leak Detector

A new portable leak detector that can locate and measure leaks in vacuum and pressure systems as small as .00000001 cubic centimeters per second is now being manufactured. Based on the mass spectrometer principle, this instrument electronically separates and measures helium molecules, by reason of their mass only, from other dissimilar molecules in the atmosphere. Introduction of helium in suspected systems will give an almost immediate indication on the visual meter or audio alarm system whenever any leakage is present.

An inexperienced person can operate this leak detector since only a few connections place the instrument in the system and a few adjustments prepare it for use. Selection of sensitivity over six different ranges can be had for measuring almost any rate of leakage. Size of the leak can also be determined with the audio system when using a helium probe

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at a distance from the instrument. The pitch of the leakage warning signal changes roughly in proportion to the size of the leak. The instrument is portable, being installed in a cabinet 43

inches high, 25 inches deep and 22 inches wide and mounted on ball-bearing rubber tired casters. The unit is powered entirely from a standard 115 volt, 60 cycle source.

Consolidated Engineering Corporation, 620 North Lake Avenue, Pasadena 4, Cal.

(Check item 8 on postcard for more information.)

9—Rotary Bit

Combining drag-type reamers and rotating cone cutters is the Drillmaster 2-D, which has found particular application in Oklahoma oil fields where it

has been employed in drilling shale formations. Two-toothed cone cutters mounted opposite each other on roller bearings provide the cutting action, while two parallel drag-type reamers keep the hole clean and to full gauge. Improved features of the bit include additional clearance through the design of twin cones and rigid stabilization provided by the wide outside drag-type reamers. Two jets of circulating fluid act directly on the formation and at the bottom of the cones without obstruction or interference with the upward travel of returning fluid and cuttings.

On the first test run of the new rotary bit in an Oklahoma well, the operator reported overall averages of 51.66 feet per hour during actual drilling time. The bit, according to reports, produced no more torque than conventional rotary bits, nor did it show excessive wear on the drag blades.

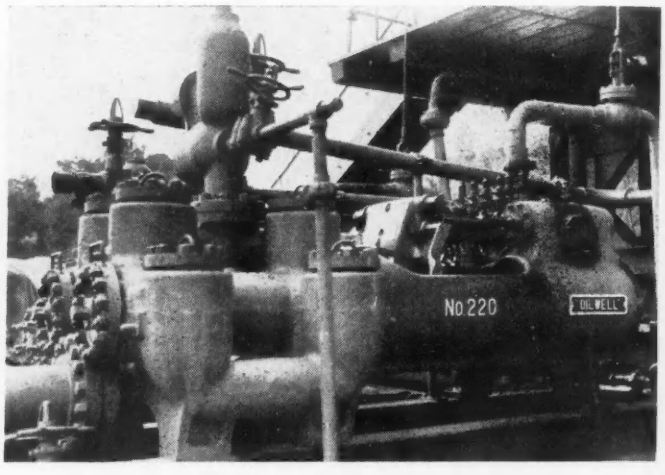
Conditions under which the bit was tested were 400 pounds per square inch mud pressure, nine points weight and 125 revolutions per minute rotary speed. The bit was reported effective where medium-hard lime shells were encountered and showed no signs of "balling" up while drilling in shale formations.

Drillmaster Bit Corporation, Wewoka, Okla.

(Check item 9 on postcard for more information.)

10—Steam Slush Pump

A new 18x8x20-inch heavy-duty duplex steam slush pump designated as the "Oilwell" No. 220 is designed for pumping applications between the service ranges of the No. 20 duplex steam slush pump and the No. 320 triplex heavy-duty pump. The fluid and suction ends of the No. 220 pump are hydrostatically tested to 7000 and 4000 pounds per square inch, respectively, with recommended working pressures of 4000 and 3000 pounds per square inch. The steam end was designed to handle superheated steam up to pressures of 400 pounds per square inch.



Positive lubrication of the steam cylinders, the steam valves, and the steam piston rods is assured by a six-feed locomotive-type mechanical lubricator. Steam valves of the balanced-piston type operate in renewable-liner steam chests. Weatherproof roller-bearing valve mechanism is a compact duplex assembly which is sealed to protect all bearings against the entrance of dirt and water.

The fluid-rod stuffing boxes are grease-lubricated. Under pressure, the grease is forced into the center of the stuffing boxs through lantern rings. A special two-feed mechanical oil lubricator to provide lubrication of the fluid-rod stuffing boxes can be furnished as an accessory. Other features of the pump include Di-hard liners, heavy-duty liner spacers (each equipped with an external grease-lubricated adjusting screw), and tell-tale liner packing.

Oil Well Supply Company, 2001 Lamar, Dallas.

(Check item 10 on postcard for more information.)

Literature

11—Pressure Gauges

An eight-page, illustrated catalog of a new line of pressure gauges contains complete listing of various types of indicating gauges, giving structural features and dimensions. Released by Gotham Instrument Company, Inc., 149 Wooster Street, New York 12.

(Check item 11 on postcard for more information.)

12—Portable Rig

A four-page, two-color folder has been issued to describe the "Rambler Rig." Advantages of this newly-developed portable drilling rig are presented in simple terms with data on lifts of the various size derricks and hoists. Included are side-view line drawings of three methods of mounting: trailer mounted, truck mounted, and skid mounted. Specifications of the "Hydrair" hoists and the "Kwik-Lift" masts are incorporated to give the reader a brief introduction.

International Derrick & Equipment Company, Dallas.

(Check item 12 on postcard for more information.)

13—Oil Filters

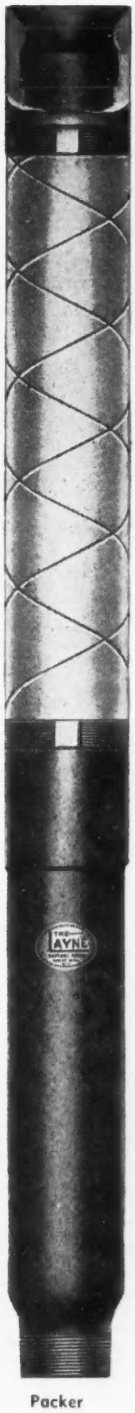
A four-page, two-color pamphlet describes micronic oil filters. Beginning with a full page illustration of a 30 gallon-per-minute filter, the brochure goes on to describe in detail the importance of oil cleanliness and the hazards of contaminated oil. An exploded view with a complete parts breakdown is also included, giving full details on the construction and materials used.

The last page gives full engineering data, performance charts and actual test reports.

Greer Hydraulics, Inc., 454 Eighteenth St., Brooklyn 15.

(Check item 13 on postcard for more information.)

When You Use THE LAYNE "TUBING SET" Packer



ONE TRIP DOES THE WORK OF TWO

If you prefer to set Screen—liner Packer with tubing—then here is the Packer you should use. It will save you the time and expense of coming out with the setting tool. Extremely flexible, this hook-up can be used with any make or type Tubing Head or Christmas Tree.

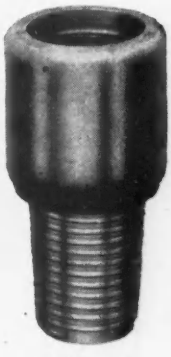
The Set Shoe, Screen, Liner and Packer are run in the casing with the tubing connected in the set shoe and not the packer.

When the setting is on bottom and screen washed on the outside twelve turns to the right, plus any additional make-up of tubing, closes the valve and releases tubing from the shoe.

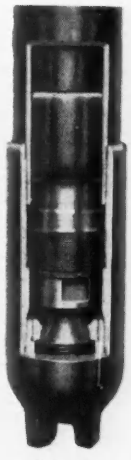
After the screen is washed on inside, the string of tubing is raised sufficiently to allow the collapsing tool segments to expand in recess at top of packer. The packer is then set in the usual manner and the tubing hung at the desired place.

Due to the Layne specially designed means of creating a hard canvas pack, this packer has 36" of canvas wrapping and it sets with the sleeve down. A suitable cap fits on tubing and rests on top of packer to keep sand, etc., from inside of packer.

Collapsing Tool



Letting in Tool



Tubing Set Shoe

☆

Write for complete information on the Layne Packers and Screens.

THE LAYNE AND BOWLER COMPANY

EXPORT:
E. H. (Gene) Trammell
Room 1636
30 Rockefeller Plaza
New York, N. Y.

General Office & Factory
8000 Market Street **Houston, Texas**

WEST COAST:
Layne & Bowler Corp.,
900 Santa Fe Ave.,
Los Angeles, Cal.

Gasoline Stocks Increase Sharply; Daily Crude Production Boosted

A sharp increase in gasoline stocks and lower inventories of gasoil, distillate and residual fuels were reported in the weekly bulletin of The American Petroleum Institute. Daily average crude output was boosted while runs to stills remained generally steady.

Gasoline stocks rose considerably in spite of lower production during the week. This trend apparently is affected by the continued unsettled weather.

Crude oil flow averaged 4,624,000 barrels daily during the week, an increase of 93,000 barrels daily compared with the average of the previous week and about normal with the output a year ago. Runs to refineries were steady at 4,776,000 barrels daily, being only 2000 barrels daily below last week's report.

Stocks of crude totaled 220,553,000 barrels January 12, the Bureau of Mines reported. This is a decrease of 2,738,000 barrels from January 4 but 1,334,000 barrels more than the stocks reported a year ago.

The week's output of gasoline totaled 14,653,000 barrels, a decline of 275,000 barrels from the previous week and 1,283,000 barrels, or 9.6 percent, greater than produced in the comparable week a year ago. Gasoline stocks rose to 98,013,000 barrels, a peak for the young year. This was an increase of 1,466,000 barrels over stocks a week ago but still 3.1 percent under stocks reported in the comparable week of 1946.

Gasoil and distillate production totaled 5,495,000 barrels last week, a drop of 325,000 barrels from the week before but the inventories remain 153,000 barrels, or 2.9 percent above those reported a year ago. Stocks of these products declined 2,062,000 barrels to 52,726,000 barrels. Residual fuel output was up 355,000 barrels, while stocks dropped 884,000 to 50,539,000 barrels.

Trends of Operations and Changes in Stocks

Figures on crude stocks are from Bureau of Mines weekly reports; all others from American Petroleum Institute weekly reports, which are estimates on Bureau of Mines basis.

(All figures in thousands of barrels—add 000)

HIGHS AND LOWS OF RECENT YEARS

ITEM	Crude Oil Prod.		Runs to Stills		Crude Stocks		Gasoline Stocks		Gasoil and Distillate Stocks		Residual Fuel Oil Stocks	
	Barrels Daily	Week Ended	Barrels Daily	Week Ended	Barrels	Week Ended	Barrels	Week Ended	Barrels	Week Ended	Barrels	Week Ended
Highs:												
1941	4,337	11–22	4,120	10–18	266,187	3–29	99,727	3–29	54,983	11–15	102,448	1– 4
1942	4,337	2– 7	3,961	1– 3	263,208	3–28	[1]109,281	3–14	47,861	11–14	95,857	1– 8
1943	4,436	11–13	4,331	12– 4	245,752	5–29	94,159	3–20	47,187	11–27	72,881	1– 2
1944	4,762	9–30	4,798	12–30	240,992	1– 1	89,162	4– 1	48,162	10–28	64,744	10– 7
1945	4,944	7–21	[1]5,140	8–18	227,554	10–13	99,012	3–24	45,341	11–17	56,074	1– 6
1946	[1]4,961	6–15	4,968	12–28	229,430	3– 2	105,233	2–16	[1]67,286	11– 9	61,636	11– 2
1947	4,649	1– 4	4,917	1– 4	223,291	1– 4	98,013	1–18	58,034	1– 4	53,285	1– 4
Lows:												
1939	[3]1,601	8–26	3,125	2–18	[2]229,127	10–12	71,152	10– 7	20,722	4–15	105,397	4– 3
1941	3,364	1–11	3,490	1–18	240,399	11–15	79,923	10– 4	28,382	4–12	90,914	7–13
1942	3,297	7– 4	3,393	5–23	231,896	12–12	75,934	12– 5	29,240	4–25	72,962	12–26
1943	3,821	1– 9	3,579	3–18	232,191	1– 9	68,182	10–16	30,732	4– 3	57,596	12–25
1944	4,357	1– 1	4,228	2–12	220,258	9– 9	76,302	1– 1	30,232	4–19	49,737	3–18
1945	3,621	10– 6	3,409	10–6	[4]211,813	8–25	70,791	10–13	26,483	3–17	38,548	5–26
1946	4,403	3– 9	4,498	1–12	218,193	1– 5	85,324	9–28	25,131	3– 9	37,289	4– 6
1947	4,531	1–11	4,776	1–18	220,553	1–11	94,882	1– 4	52,726	1–18	50,539	1–18

TRENDS OF 1946 AND 1947

Trends in Week Ended	Crude Oil			Gasoline		Gasoil and Distillate		Residual Fuel	
	Production Daily	Runs to Stills Daily	Stocks Week End	Production Weekly	Stocks Week End	Production Weekly	Stocks Week End	Production Weekly	Stocks Week End
1946:									
January 5	4,548	4,651	218,193	14,488	98,494	5,293	35,199	8,867	42,371
January 26	4,626	4,553	220,544	13,622	101,737	5,720	29,498	8,411	39,722
February 23	4,714	4,595	226,699	13,175	104,709	5,728	25,398	7,913	39,290
March 30	4,425	4,684	224,994	13,896	104,715	5,337	28,240	8,738	37,746
April 27	4,672	4,685	224,443	14,228	99,631	5,568	30,466	9,204	39,404
May 25	4,759	4,857	222,214	14,312	95,769	5,463	32,973	8,908	43,368
June 29	4,957	4,854	223,883	14,500	92,333	5,325	37,762	8,828	46,447
July 27	4,926	4,896	223,756	14,535	88,626	5,817	44,316	8,217	49,517
August 31	4,833	4,911	227,132	15,014	87,217	5,630	53,134	8,539	53,173
September 28	4,778	4,829	223,043	14,675	85,324	5,632	59,827	8,172	57,657
October 26	4,730	4,758	221,184	14,863	86,423	5,710	65,499	7,728	60,872
November 30	4,795	4,707	227,693	15,145	88,371	5,258	66,062	7,672	58.647
December 28	4,713	4,968	225,995	15,604	93,126	5,931	58,941	8,181	53.427
1947:									
January 4	4,649	4,917	223,291	15,281	94,882	5,857	58,034	8,375	53,285
January 11	4,531	4,778	220,553	14,928	96,547	5,820	54,788	7,801	51,423
January 18, 1947	**4,624**	**4,776**	.....	**14,653**	**98,013**	**5,495**	**52,726**	**8,156**	**50,539**
January 19, 1946	**4,606**	**4,575**	[5]219,219	**13,370**	**101,109**	**5,342**	**31,428**	**8,646**	**37,371**
Change:									
In Week	+93	—2	—2,738	—275	+1,466	—325	—2,062	+355	—884
In Year	+18	+201	+1,334	+1,283	—3,096	+153	+21,298	—490	+13,168
In Year	+0.4%	+4.4%	+0.6%	+9.6%	—3.1%	+2.9%	+67.8%	—5.5%	+35.2%

[1] All time peak. [2] Lowest between January, 1922 and July 1, 1944. [3] Lowest since October, 1922, due to shutdown of six Mid-Continent states. [4] Lowest since December, 1921. [5] Stocks, January 12, 1946.

Fuel Price Reductions in Eastern Areas Extended

Extension of the price reductions throughout most of New York and New England on No. 2 fuel and an increase in gasoline postings in California and Ohio were among the changes in quotations for refined products made last week. Demand for most products were described as "fairly good."

Also last week, Standard Oil Company of California announced the posting of prices it is paying for crude of 31-gravity and above in the Mountain View field, Kern County, California, effective January 15. The new prices range from $1.57 per barrel for crude of 31.0 to 31.9-gravity up to $1.73 for 35-gravity and above. Existing prices for crude below 31-gravity remain unchanged.

Socony-Vacuum Oil Company announced that it is extending its reduction of approximately 2 cents in prices for No. 2 fuel throughout most of New York and New England effective January 22. The company also posted an increase of .05 cent in the tank car price at Bridgeport and South Norwalk, bringing the price up to 6.4 cents a gallon.

Standard of California boosted the wholesale and retail prices for gasoline and kerosine at San Francisco by .5-cent a gallon and upped diesel and heating oils .25-cent.

New gasoline prices posted by Standard Oil Company (Ohio) at Shelby, Ohio, are 9.9 cents for regular grade and 11.4 cents for Ethyl, excluding taxes, up 1.5 cents per gallon.

Straight-run gasoline in Central Michigan was reported commanding top prices in face of a strong demand. Fuel oil supply continued tight.

Midwest refiners reported no change in prices with demand for kerosine and burning oils strong.

Movement of No. 2 fuel oil on the Gulf Coast was almost at a standstill. The price was steady at 4.75 cents.

No open spot sales of Grade 26-70 natural gasoline were reported with one supplier quoting 5 cents FOB Group 3 and another 4.5 cents, FOB Breckenridge.

Tax Exemption Opposed

The Bossier Parish, La., police jury voted to request the State Department of Commerce and Industries not to grant application of Barnsdall Oil Company, discoverer of the Benton field, for tax exemption covering a $3 million recycling plant planned northeast of Benton, for which site has been acquired.

☆ California

Good Producer Completed in East Los Angeles Field

Fifth completion in East Los Angeles field is good producer; Standard Oil Company of California completes first well in West Newport field; wildcat to be drilled in San Diego County near Oceanside; Sharples Corporation wildcatting in California for first time; new test for gas to be drilled in San Joaquin County.

Los Angeles County: Richfield Oil Corporation completed its fifth producer in the East Los Angeles field when Union Pacific Unit 3 in 16-2s-12w was turned into the tanks flowing 602 barrels of 35.7-gravity clean oil through 19/64-inch choke. Total depth is 8405 feet. Location has been staked for U. P. Unit 4, also in Sect. 16.

East Los Angeles is a 100 percent Richfield oil field to date. Its other completions were U. P. Unit 1, the discovery, Vail 1 and 2, and Edison 1.

Seaboard Oil Company's Mission Land 8-1, near Newhall, produced 15 barrels of 15-gravity oil on pumping test, with an unestimated water cut. Total depth is 9528 feet plugged back to 7790 feet, so it hardly can be considered a commercial producer. A second well has been started on the Mission Land lease, however, and is below 2385 feet.

The first of several wildcats being drilled in the general area of Castaic has ended in failure. Barnsdall Oil Company has abandoned Dodge 1 in 32-5n-16w at 5984 feet after running electric log and dip meter. There were no showings.

Orange County: Standard of California has completed its first well in the West Newport Beach field. Deeble-Smith 2 in 18-6s-10w was completed flowing 634 barrels of 23.5-gravity oil through 24/64-inch choke from a plugged depth of 3550 feet with shutoff at 3215 feet. Location is about ½ mile southwest of the company's McLeod 1 duster. Deeble-Smith 3 will be drilled at once.

Standard's Garden Grove wildcat, Stanley Community 1 in 33-4s-10w, has been plugged back from 8704 feet to 6150 feet after taking sidewall samples. The well is scheduled for abandonment.

San Diego County: The first wildcat to be drilled in San Diego County in several years will get under way soon when Snell Drilling Company of San Bernardio spuds Henie 1, 5 miles north of Oceanside on the Sonja Henie ranch in 29-11s-4w. Nearest test drilling in the past has been about 5 miles west on the sea coast.

Kings County: Lebow and McNee's Hacienda 1, outpost on the west side of the Trico gas field in 11-24s-22e and about 1¼ miles west of production, is running low structurally. Electric log indicates the well at 2710 feet is still above the first Mya sand. In Sect. 12 on the west side of the field, Shell Oil Company completed the second well on its Alpaugh Unit lease, flowing 3½ million cubic feet from the first Mya sand and 5,700,000 from the second Mya. Location has been staked for a third well. The 2 completions are Shell's first production in this field.

Fresno County: Sharples Corporation of Denver is making its first wildcat play in California on 7000 acres under lease a few miles north of the Amerada area of the East Coalinga Extension field. Location for the first test has been staked in 6-19s-16e. A California office has been opened at Coalinga in charge of Ed Wheeler. The company's only other exploration experience on the West Coast was in Washington, where it drilled 3 dry holes during the war.

San Joaquin County: The Ohio Oil Company will drill Avila 1, a gas test about 5 miles south of Stockton in the Fairchild area, 6-1s-6e. About 1½ miles to the southeast, The Texas Company drilled Lawrence-Stephens 1 to 5839 feet in 1937 without showings.

Kern County: About 2000 feet of drill pipe remain in Pacific Western Oil Corporation's world's deepest well, National Royalties 1, the remainder of the long string having been recovered by cutting and pulling. Fishing operations continue.

Belridge Oil Company is reaming its deep test, 62-W-33 in the South Belridge field, preparatory to making a formation test. Total depth is 14,107 feet.

Washington

Standard Oil Company of California is drilling below 805 feet in an exploratory well near Martha Lake, 8 miles northeast of Edmonds. The well, known as Alderwood 1, is in 35-28n-4e. Selection of the site was based on a series of seismograph tests conducted by the company during the past year.

This will be the third attempt by Standard to discover oil in the state. In 1920 the company drilled a dry hole in the Moclips area near Aberdeen. Its second venture in Whatcom County was abandoned early in 1946.

☆ Oklahoma

Bartlesville Sand Oil Pool Opened in Noble County

Oil pool opened in Noble County; gas pool opener in Major County makes small show of oil; deep test in Caddo County to go to 15,000 feet; Wetumka discovery causes increase of activity in Hughes County.

Noble County: An oil pool has been opened west of Red Rock by G. C. Harwell and associates. Greer 1, SW SW SW 24-23n-1w, flowed 37.5 barrels of oil in 19 minutes into tanks on a test, and then flowed a steady stream into pits, making an estimated ten barrels of oil per hour with a considerable amount of gas. Pay is from the Bartlesville sand, topped at 4370 feet, with casing set at 4374 feet. Total depth of the discovery is 4374 feet in the Bartlesville.

Major County: One of Oklahoma's most closely watched wildcats, which

Wells Completed in the United States in Week Ended January 18, 1947

Data preliminary and subject to revision. Revised and more complete data on all completions and exploration shown in monthly summaries published in last issue of each month.

State or District	FIELD COMPLETIONS: New Wells Oil	Dist.	Gas	*Input	Dry	Total	Old Wells Deepened	EXPLORATORY COMPLETIONS Oil	Dist.	Gas	Dry	Total	ALL COMPLETIONS This Week	Last Week	This Week 1946
Alabama															1
Arkansas	5					5							5	5	1
California	28		3			31					3	3	34	41	41
Colorado														3	
Florida														2	1
Illinois	18				9	27					6	6	33	102	79
Indiana	11				5	16					8	8	24	14	18
Kansas	8		11		5	24		1			9	10	34	75	53
Kentucky	10				1	11		1			1	2	13	11	38
Louisiana	6		3		4	13		2	1		3	6	19	44	27
N. Louisiana	3		2		2	7					2	2	9	30	15
S. Louisiana	3		1		2	6		2	1		1	4	10	14	12
Michigan	2				4	6					7	7	13	14	14
Mississippi	4					4				1		1	5	3	4
Montana	1					1					1	1	2	4	
New Mexico	6		1		1	8	1						9	16	6
New York	15			10		25							25	27	25
Ohio	6		16		7	29					2	2	31	23	20
Oklahoma	23		1	1	10	35	1	1			14	15	51	103	47
Pennsylvania	27		3	15		45							45	45	42
Texas	88	2	11		10	111	3	6			26	32	146	154	159
E. Tex. Bor. Co.'s														2	2
Rest of E. Texas	7		1			8					3	3	11	9	8
North Texas	28				3	31	1	1			2	3	35	37	73
W. Central Texas	4		1		4	9					4	4	13	5	8
West Texas	21		1		1	23	1				5	5	29	40	23
Texas Pnahandle	2		7			9							9	5	7
G. Coast, Upper	10	1	1		1	13		2			4	6	19	14	11
G. Coast, Lower	12	1			1	14	1	3			4	7	22	22	20
Southwest Texas	3					3					2	2	5	15	2
S. Central Texas	1					1					2	2	3	5	5
West Virginia	5		11		4	20	1						21	4	13
Wyoming	1					1							1	7	
Total. U.S.	264	2	60	26	60	412	6	11	1	1	80	93	511	697	589

* Includes salt water disposal wells.

definitely opens a new gas pool south of Meno and east of Ringgold in eastern Major County, is averaging about 12 barrels of fluid per hour, which is about 50 percent 50-plus gravity light green oil. The well has been making approximately 12 million cubic feet of gas per day from the second Wilcox sand from 8005-124 feet, total depth. Location of the well, on the east side of the central portion of the vast Anadarko Basin, is on a farmout from Amerada Petroleum Corporation, which seismographed the structure.

Caddo County: Magnolia Petroleum Company, Phillips Petroleum Company and The Carter Oil Company have staked a 15,000-foot test southeast of Anadarko townsite. The deep venture, to be operated by Magnolia as the Miller 1, CNW NE 14-6n-9w, is about 3 miles north of production in the Cement pool. No test of similar depth has been tried in this portion of the county. J. E. Trigg had a 6200-foot dry hole at Smith 1, CSE NW of 19-6n-9w. About 20 miles northwest, Denver Producing & Refining Company tried several deep tests in the Binger area, and at present is drilling School Land 1-A, in CSE SW 16-10n-9w, near Coagar. The state's deepest operation—which broke all records for Oklahoma, is The Superior Oil Company of California's Weller 51-11, north of Fort Cobb, now drilling slowly below 16,400 feet. Protection string of 7-inch pipe was run to 16,351 feet. Prior to the resumption of drilling, steel line measure was run to corrected depth of 16,387 feet.

Hughes County: An increase of activity in Hughes County has been noted since Texola Drilling Company et al's Meadors 1, NE NE NW 31-9n-11e, opened an oil pool 5 miles east of Wetumka. The company's offset well, Meadors 3, SE NE NW 31-9n-11e, found the Booch sand at 2145-70 feet, and on a drill-stem test at 2146-70 feet, recovered an estimated 1 million cubic feet of gas, with bottom-hole pressure 950 pounds. No oil has yet been encountered and crew is drilling to the Cromwell sand. Meadors 1 made an initial flow of 685 barrels of oil and is now holding steady at 554 barrels per day from the Cromwell at 3090-110 feet. There have been 9 new locations in the immediate vicinity.

☆ Kansas

Ellis County Wildcat Opens Oil Pool in Arbuckle Lime

Ellis County wildcat is opening oil pool; Barton County test recovers 1200 feet of oil on test; wildcat in Barber County may open pool.

Ellis County: An oil pool is being opened by John Lindas et al's Seitz 1, NE NE SE 27-14s-19w. The wildcat filled up with 1400 feet of oil in 8 hours on a test in the Arbuckle lime, 3712-25 feet. The fillup occurred when plug was drilled out on top of the pay. The test is 1½ miles north of Antonio.

Barton County: A likely pool opener is Bay Petroleum Company's Houdyshell 1, NE SE SW 31-20s-15w, 2½ miles southeast of the Pawnee Rock pool. On a drill-stem test, with tool open 15 minutes, 1230 feet of free oil was recovered, with pay coming from the Arbuckle lime, from 3834-50 feet. The formation was topped at 3785 feet. Conglomerate was topped at 3708 feet, and Simpson sand at 3757 feet. Testing of the Arbuckle continues.

Barber County: H. W. Skinner's Fee 1, NE SW NE 5-32s-11w, 2 miles southeast of the Whelan pool, shows indications of opening an oil pool near Medicine Lodge. The Fee recovered 60 feet of oil-cut mud and a small show of free oil on a drill-stem test at 4339-50 feet in the Mississippi lime, topped at 4339 feet. Crew is drilling ahead before further testing of the Mississippi.

☆ Illinois Basin

Illinois' East Olney Pool May Get Mile North Extension

Extension looms for East Olney pool; test may link Wabash County pools.

Illinois

Fryer-Simpson Drilling Company's Drews 1, NE NW NW 13-4n-10e, Richland County, a mile north of the East Olney pool, has set pipe for a test of McClosky lime at 3070-75 feet. During a 1-hour drill-stem test the well showed 120 feet of clean oil and 120 feet of oil-cut mud.

Wabash County: Illinois Mid-Continent Company's Kurtz 1, NW NE SE 25-2s-14w, midway between the Cowling and Keensburg pools, is preparing to test Tar Springs sand at 2095-105 feet. On a drill-stem test the well yielded 10 feet of oil and 170 feet of oil-cut mud.

Clay County: Phillips Petroleum Company's Spiker 1, NE SE SW 23-3n-5e. 1½ miles northwest of the Kenner pool, continues testing after swabbing 108 barrels in 24 hours after a 35-quart shot in Cypress sand at 2585-95 feet.

Wabash County: F. J. Fleming's Berberich 1, SE SE NW 26-1s-14w, a mile east of the Browns pool, is completed for 250 barrels, initial pump production, in McClosky lime at 2965-75 feet.

White County: W. O. Allen's Ackerman 1, NE NE SW 4-7s-10e, a mile south of Concord pool, swabbed 185 barrels of oil in 24 hours after a 40-quart shot in the Aux Vases sand at 2900-10 feet. Testing continues.

Indiana

B. M. Heath's Stallings 1, NE SW NW 30-5s-13w, Posey County, midway between the Springfield and North Springfield pools, was completed for 220 barrels of oil daily on pump. Pay was found in Palestine sand at 2005-15 feet.

☆ New Mexico

Brunson Field Moves North; Two Outposts Are Starting

Brunson field extended north and 2 outposts starting; Lea County wildcat fails to respond to acid; lease bonus and rentals reaching higher levels under competitive bidding.

Competition for leases on wildcat blocks and checkerboard acreage in the southeast portion of the state has resulted in a minimum cash bonus of $5 per acre being paid on new deals. Rental payments on new leases are generally being stepped up from 50 cents to $1 per acre.

Lea County: Amerada Petroleum Corporation's Corrigan 6, ¼ mile north outpost for the Brunson field, flowed 465 barrels of 40.3-gravity oil, with gas-oil ratio of 1011/1, on 7¼-hour gauge through ½-inch choke after using 6000 gallons of acid through 3 zones of perforations between 7508 feet and 7680 feet. The Ellenburger was entered at 7508 feet, and granite at 7687 feet. The company is starting Corrigan 8 to complete in the 6500-foot Yeso, making triple wells, as the Ellenburger is a twin location to a regular Permian producer. Amerada is starting Hare 4, SE SW 33-21s-37e, to try for a ½-mile northwest extension of the Ellenburger pay, and it is also a triple location. The company will attempt to extend the Ellenburger area ½ mile south in drilling Walden 1, near C NE SW 15-22s-37e, being 100 feet southwest of a regular Permian producer.

N. G. Penrose, Inc.'s Penrose-Federal 3, northwest offset to the firm's Ellenburger discovery for the Brunson area, entered the Ellenburger at 8087 feet with elevation 3428 feet, and will attempt to complete from open hole at 8090-8110 feet. It is lower structurally than other producers.

Continental Oil Company et al's Skaggs 5-B-23, ½ mile east of the Pennsylvania discovery for the Skaggs-Cass pool and higher structurally, resumed drilling after recovering 5550 feet of sulphur water at 9015-9243 feet. It also showed water in the Devonian, topped at 8155 feet.

Devonian Oil Company's Browne-Federal 1, northeastern Lea County wildcat and prospective pumping discovery, exhausted its oil and showed a nominal amount of gas after reacidizing with 4000 gallons at 4926-5011 feet.

Hobbs Field: Sun Oil Company's McKinley 1-B, deepened San Andres lime pumper on the northeast edge of the Hobbs structure, was scheduled to deepen to 8000 feet and abandon. Numerous showings of oil and gas encountered below the San Andres by this first deep test for the area materially enhance the outlook for deeper production on top of the structure. McKinley 1-B almost made a pumper from Wolfcamp, Basal Permian beds, at 7542-658 feet. A drill-stem test at 7695-860 feet yielded 1440 feet of oil- and gas-cut mud and 540 feet of sulphur water, while a later test at 7861-85 feet returned 450 feet of oil- and gas-cut mud and 210 feet of sulphur water.

San Juan County: Byrd & Frost, Inc., P. B. English et al's Hargrove-Federal 1, prospective Dakota gas-distillate discovery for the Kutz Canyon prospect, was awaiting arrival of 3½-inch drill-pipe to drill plugs from pipe cemented at 6470 feet with the hole bottomed in sand at 6482 feet. Stanolind Oil & Gas Company owns half interest in the well.

Refinery Interest Sold

Premier Oil Refining Company has purchased one-half interest and operating control of Independent Refining Company's 3000-barrel daily capacity refinery at Arp, near the East Texas field, from Sam Dorfman and Sam Sklar. Premier operates plants at Greggton, adjacent to the East Texas field, Fort Worth, Baird and Cotton Valley. The company advanced its posted price in the East Texas field to $1.80 or 10 cents above the posting of other buyers, on January 10, and has been successful in procuring additional oil for its plants.

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☆ West Texas

Much Twin Drilling to Follow Goldsmith Devonian Strike

Devonian oil discovery in Goldsmith field to result in considerable twin drilling due to term lease; commercial production from Pennsylvanian confirmed by isolated wildcat in new producing province; new Permian producing zone on southwest side of the Keystone structure may attain importance.

Ector County: Gulf Oil Corporation's Goldsmith 421-E, near C NE SE T&P Railway 15, Block 44, T-1-S, and twin to San Andres production, proved the high part of the Goldsmith field capable of commercial production from the Devonian, and was coring oil-stained sandy-lime and chert at 8144 feet. Entering the Devonian at 7975 feet, with elevation 3115 feet, this well yielded 210 feet of oil-cut mud and 180 feet of free oil when tester was used at 8021 feet. A test at 8040-68 feet resulted in a flow of 5 percent oil and 95 percent slightly salty water. A third test at 8020 feet, discounted this water, as gas appeared at the surface within 7 minutes, while the recovery consisted of 5920 feet of pipeline oil and 180 feet of oil-cut mud. Formation water was probably reached at 8055 feet, but no water appeared on the last test.

Gulf has completed 422 consecutive producers on its Goldsmith 19,840-acre lease, which is scheduled to revert by contract terms to royalty owners in 1975 regardless of remaining crude reserves. The company is likely to stage a large-scale deep drilling program in view of the term lease, while 2 or more deeper horizons are prospective sources of production. No appreciable Devonian beds, if any, were encountered by the Ellenburger failure on the north edge of the field. However, it was plugged back to establish attractive sweet oil production in the 6200-foot Clear Fork.

American Republics Corporation's TXL 1, ⅝ mile southeast of the Murchison pool's Devonian pumper, flowed 121 barrels of 39.8-gravity oil initial after pressure buildup for completion from Wolfcamp perforations at 7798-7815 feet. It proved dry in the Devonian, although 116 feet high, and was plugged back from water in Ellenburger at 10,736 feet. Phillips Petroleum Company et al's Millard Unit 1, southwest outpost, was fishing for stuck drill pipe at 11,000 feet in Ellenburger, topped at 10,834 feet.

Hale County: Stanolind Oil & Gas Company's Fisher 1, C SW SW E.L. & RR. 5, Block CL, 19 miles east by north of the Irish field, nearest production, swabbed 118 barrels of 42-gravity oil on 16-hour test from broken oil-saturated lime at 6895-6992 feet. This production is from the Pennsylvanian, topped at 6885 feet, with elevation 3318 feet. Acid treatments are pending. It is 7¼ miles west by north of a 6760-foot granite failure that entered barren Pennsylvanian (Canyon) at 6150 feet, and 11 miles south by west of a 10,250-foot granite failure, which topped the Pennsylvanian (Canyon) at 5860 feet. Since Fisher 1 is on the north flank of the buried granite mountains, trending east-west, that serve as the north end of the Permian Basin, a new producing province may be in the making. Many leases in the area will start expiring in February, 1948.

Winkler County: Standard Oil Company of Texas' Baird 26-13, SW SW PSL 13, Block B-3, deepened Colby sand producer on the southwest side of the Keystone field and 2½ miles southwest of nearest Holt (Glorietta) production, with an intermediate failure, was showing for a new pay discovery. This prospect passed up gas-distillate production in the Holt, topped at 4866 feet, with elevation 2912 feet, and logged effective pay in drilling the Clear Fork to 5425 feet. A preliminary test of open hole at 5420-25 feet yielded 2 barrels hourly, half oil and the balance water, and production test was under way of perforations at 5350-84 feet. A geophysical survey reveals the possibility of a large structure from these deeper Permian beds. The company is deepening Baird 61-18, NE NE PSL 18, and ¾ mile west by south.

Beecherl and McDaniel Drilling Company's Barton 1, SW SW NW PSL 26, Block B-3, Kermit townsite area, idle at 5330 feet in Holt, topped at 5025 feet, is scheduled to be deepened to the Ellenburger by nearby lease owners.

Crockett County: Stanolind's University 1-TT, C SW NW Sect. 12, Block 39, and ½ mile north of its idle wildcat that cased off gas-distillate production in the detrital, was drilling dry dolomite at 8440 feet in Ellenburger, topped at 8085 feet, or 112 feet low. Six drill-stem tests of the Ellenburger failed to indicate commercial production. However, this confirmation well tested a large volume of gas-distillate from the detrital at 8013-65 feet. Shell Oil Company's University 1, 1½ miles southwest of the first test, was drilling shale at 7650 feet. Amerada Petroleum Corporation is starting University 1-C-T-A, near C SE SW Sect. 23 Block 42, 5 miles west by south of the latter, to explore the Ellenburger, assuming drilling obligation contracted at last December's University sale by Ross Williams, who bid $38,000 cash for the section. Sinclair Prairie Oil Company is making location for a test 7 miles west on the University 2492-acre block acquired at the sale sale for $910,000 cash.

Pecos County: The Pure Oil Company's Harrison 1, 12 miles southeast of its Delaware production in the Chancellor pool, was drilling shale and sand at 6777 feet. A water well drilled near this test was showing about 4 barrels of unusually heavy oil hourly from the Rustler near the 800-foot level, but the shallow production is expected to exhaust shortly.

Kent County: Humble Oil & Refining Company's Blair 1, 1⅝ miles southwest of its Polar 2-well pool, and 59 feet low in the Ellenburger that was drilled to 7925 feet, was abandoned after acidizing the Mississippian at 7609-90 feet. The company is starting Boren 1 as a north offset to its discovery.

Crane County: Gulf Oil Corporation's University 1-HH, 3¾ miles north by east of the Block 31 2-pay field, was drilling lime and chert at 8915 feet in Devonian, topped at 8390 feet with elevation of 2659 feet. Drill-stem tests at several points in the Devonian indicated probable production. A deep syncline prevails between this wildcat and the Block 31 field.

IPAA Meeting Set

The executive committee of the Independent Petroleum Association of America and IPAA state vice presidents will meet in Los Angeles January 30-31. The midyear meeting of the directors of IPAA will be held in Jackson, Miss., March 8-9.

☆ North Texas

Offsets to Wilbarger County Discovery Are Being Tested

Two offsets to Wilbarger County discovery testing; Jack County semi-wildcat fails to respond to acid treatment of Ellenburger; deep-pay discovery in Spring sector of Ringgold field is disappointing.

Wilbarger County: Amerada Petroleum Corporation's Inglish 1, west offset to the Tolbert pool discovery, swabbed 13 barrels of oil on 16-hour test from perforations at 5075-91 feet in lower pay excluded by discovery, and perforations were to be made opposite more effective pay at 5039-69 feet. The Palo Pinto was entered at 5039 feet, or 19 feet low. The Texas Company's Robertson 1, north offset to the discovery, was bailing only one-third of a barrel of oil per hour after using acid through perforations at 5024-60 feet in lime, topped at 5027 feet, or 6 feet low.

Jack County: Warren Oil Corporation's Gillespie 1-C, J. B. McNeil Survey and ¾ mile north of 3500-foot Strawn production, failed to flow after acidizing open hole at 5480-5517 feet in Ellenburger. A drill-stem test of this zone indicated probable flowing production.

Clay County: Gulf Oil Corporation's Spring 16, SW NE H&TC 37, Block 4 and in the Spring sector of the Ringgold field, flowed 159 barrels of oil on 20-hour gauge through ¾-inch choke after acidizing Ellenburger open hole at 5724-28 feet, but declined to 22 barrels the next 17 hours. Previous Ellenburger producers on this large structure declined sharply in output.

Collin County: Standard Oil Company of Texas' Newsome 1, Frisco area, was drilling shale and sand at 7090 feet. An unusually thick section of oil-stained and hard sand in the Strawn failed to indicate production on drill-stem tests.

Grayson County: Denver Producing & Refining Company's Rich 1, deepest test in the district, was drilling broken lime and shale at 11,825 feet. In the Handy pool, L. O. McMillan and Sherman Hunt's Thorn 2 was drilling shale at 5770 feet.

☆ East Texas

Smith County's Mount Sylvan Field Has Paluxy Failure

Mount Sylvan field lists fifth failure in Paluxy; production test of Travis Peak underway at Cherokee County wildcat; west flank of the Hawkins Field assigned deep test.

Smith County: Humble Oil & Refining Company's Dowell 2, Jas. Dickerson Survey and northeast outpost for the Mount Sylvan field, was awaiting orders at 7405 feet, no shows of any consequences were encountered in drilling through the Paluxy. Dry holes now virtually define the 2-well pool.

Delta Drilling Company's Lyons 1, Jesse Benton Survey and 2½ miles northeast of Lindale, was drilling at 4060 feet on Paluxy contract. Base of Pecan Chalk was called at 3595 feet, and top of Gober at 4046 feet.

Cherokee County: Standard Oil Company of Texas' New Birmingham 1, prospective Rodessa gas-distillate dis-

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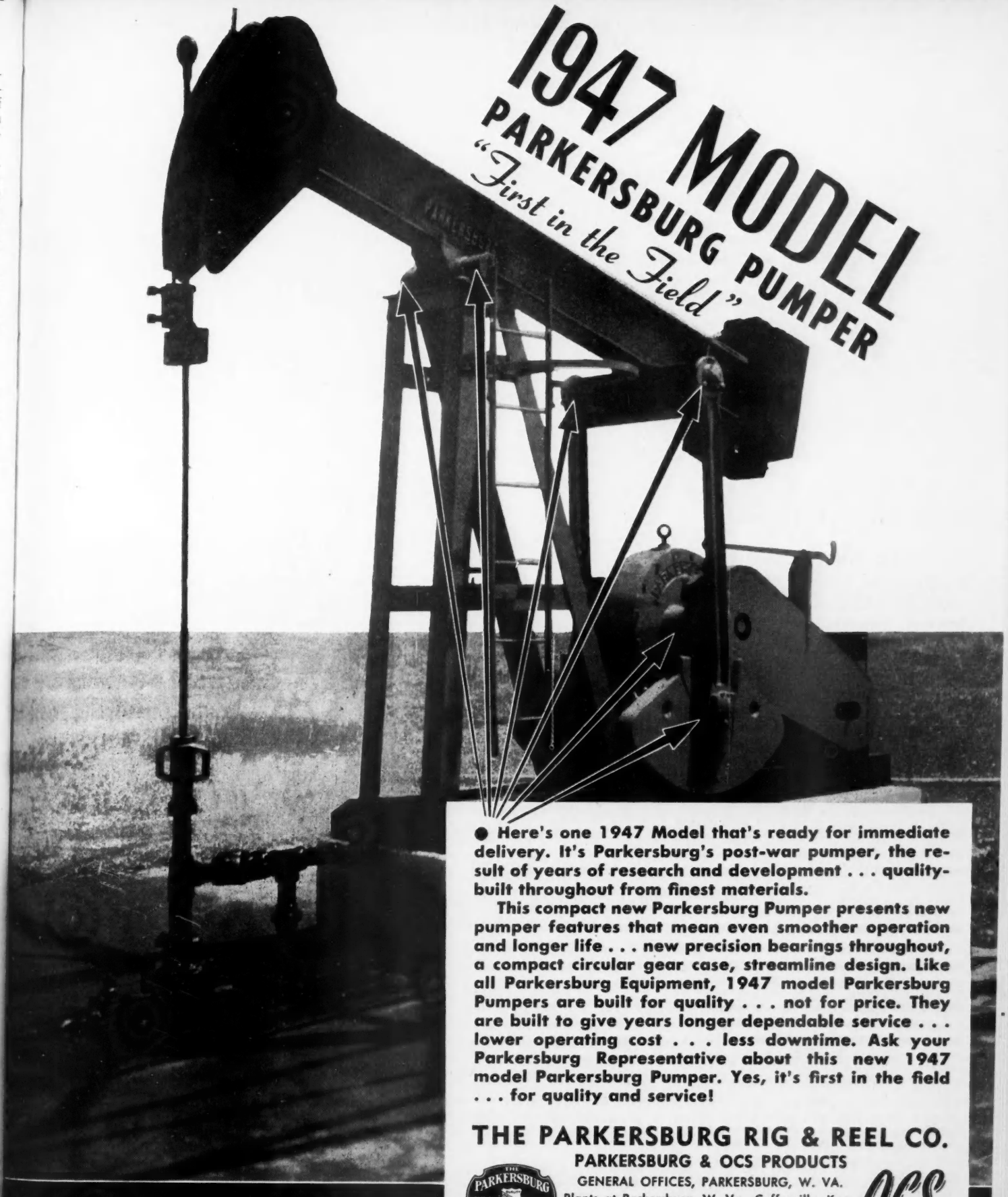

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covery, failed to indicate production in perforating 2 zones in the lower part of the Travis Peak, topped at 9508, and was reperforating at 9970-80 feet.

Houston County: Geier-Jackson Recycling Company's Adams 1, Letson Purdy Survey and northwest edge of the Grapeland gas-distillate field, was perforating opposite comparatively thin gas pay in drilling the Woodbine to 6015 feet.

Standard Oil Company of Kansas' Lundy-Humble 1, wildcat and 11 miles west of Crockett, was abandoned at 7507 feet in shale. Gas and distillate showings encountered in the upper section of the Woodbine, topped at 7120 feet, may result in another test for the area.

Wood County: Humble Oil & Refining Company's Little Sandy Hunting & Fishing Club 1, Ed. Wideman Survey and on the west side of the Hawkins field, failed to produce from the Sub-Clarksville and Woodbine and has cemented 9⅝-inch pipe at 5532 feet to deepen to the Travis Peak, or 10,000 feet. Its primary objective is the 9000-foot Rodessa, which indicated gas-distillate production at the company's McKnight 1, northeast outpost, currently drilling hard sand and shale at 10,800 feet. The latter is due to explore the Smackover.

☆ Southwest Texas

Wildcat a Mile Southeast of La Reforma Field Flows Oil

Wildcat southeast of La Reforma flows oil; test between Ross and South Rincon fields plugged and abandoned; gas discovery in Duval County completed; Piedras Pintas well being dually completed; Zapata wildcat plugged.

Starr County: Baldridge & King's Guerra 1-B, wildcat a mile southeast of La Reforma field, flowed clean oil from perforations at 6046-56 feet. A previous test of perforations at this interval flowed 65 percent oil and 35 percent salt water. Total depth is 7505 feet with 5½-inch casing set to 7400 feet.

W. D. Kennard et al's Starr County Cattle Company 1, wildcat about a mile northeast of Ross field and 1½ miles west of South Rincon field, has been abandoned as dry at total depth of 2803 feet. A drill-stem test at 2674-78 feet recovered 40 feet of oil-cut mud and 2100 feet of salt water.

Duval County: Tom Graham & Cam Corporation's Benavides 1, gas discovery well 1½ miles southeast of Cole field, has been completed for a potential of 1,630,000 cubic feet of gas daily on open flow. Total depth is 3333 feet with 5½-inch casing set on bottom and perforated for completion at 3319-25 feet.

J. C. Hawkins' Blomberg 1, in A. Bryant Survey 8, Piedras Pintas field, is making dual completion. One completion at 4068-70 feet flowed 195 barrels of oil daily through ⅛-inch choke with tubing pressure 675 pounds and gas-oil ratio 493/1. Total depth is 5191 feet with 5½-inch casing set to 4766 feet. Gauge of completion through the casing has not been made.

Zapata County: William Spice, Jr.'s Martin 2, wildcat about 3 miles southeast of Comitas field, has been abandoned as dry. Total depth is 2164 feet with no shows.

☆ South Central Texas

Humble Completes Jourdanton Field Mile West Extension

Humble completes mile west extension to Jourdanton field; potential run on Charlotte field well; Quintana's Gonzales County deep test below 10,500 feet; waiting on pump at Luling extension test.

Atascosa County: Humble Oil & Refining Company's SPJSA Lodge 1, mile west extension test at Jourdanton field, flowed on potential 92 barrels of 39.4-gravity oil daily through .1110-inch choke with gas-oil ratio of 756/1. Total depth is 7392 feet with 5½-inch casing set to 7386 feet, completion being from open hole. This well is located a mile west of the company's Sandeen 1, previous Jourdanton field extension that expanded production 8200 feet west-southwest.

At Charlotte field Humble has completed E. M. Chylek et al 2, located 2000 feet west of The Texas Company's Thompson 1 and 1000 feet north of Bering Company's Koemel 1. On potential the well flowed 106 barrels of 37-gravity oil daily through 3/16-inch choke with gas-oil ratio 298/1. Tubing pressure was 210 pounds and casing pressure 50 pounds. Total depth is 5215 feet with 5½-inch casing set to 5115 feet and completed from open hole.

Gonzales County: Quintana Petroleum Company et al's Speickermann 1, wildcat 7½ miles south-southwest of Gonzales, is drilling below 10,500 feet in a test projected to 14,000 feet. This test, being drilled by Newman Brothers Drilling Company, is being held tight. It is 2600 feet from the northwest line and 7500 feet from the northeast line of William Newman Survey A-362.

Guadalupe County: Wiegand Well Servicing Company's Anderson 2, in the Luling extension area, is waiting on pump for completion. Total depth is 2060 feet and completion will be in the Austin chalk. The well is 500 feet southwest of the Anderson 1 extension discovery, which in turn is about ½ mile southwest of the old Luling field.

☆ Lower Texas Coast

Bee County Burnell-Wilcox Field Gets North Extension

Burnell-Wilcox field extended a mile north; Seeligson and Borregas fields linked; Seeligson wildcat logs oil sand; Fayette County wildcat completed as dry gas recovery; wildcat northwest of George West tests oil.

Bee County: Tom Slick's Fee 1-D is being completed as a mile northwest extension to the Burnell-Wilcox field. The well was shut in for erection of storage after flowing amber-colored condensate with 2000 pounds tubing pressure and 2400 pounds casing pressure with no water.

Kleberg County: A link between the Seeligson field and the growing Borregas field is Humble Oil & Refining Company's King Ranch-Borregas 5, located 5230 feet west of the Borregas 2 southeast extension well at Borregas field and about a mile northeast of Seeligson field. The well flowed on completion 160 barrels of oil daily through ⅛-inch choke with gas-oil ratio 896/1. Total depth is 7800 feet with casing perforated at 6966-74 feet.

Jim Wells County: Magnolia Petroleum Company's David Clarke 1, wildcat a mile west of Seeligson field in NE¼ SW¼ SE¼ Sect. 62, R. P. Haldeman Subdivision of the Seeligson Ranch, logged a sand with oil show at 5229-37 feet. Two drill-stem tests at this level failed and hole was cored ahead below 5703 feet with projected total depth 6750 feet.

Fayette County: Standard Oil Company of Kansas' August Pietsch 1, wildcat discovery in J. R. Phillips League, has been completed as a dry gas well. Initial production was 2,900,000 cubic feet of gas daily through ¼-inch choke with 2110 pounds flowing pressure on tubing and 2210 pounds on casing. Total depth is 6918 feet with 5½-inch casing set to 6641 feet and perforated for completion at 6521-27 feet in the Wilcox formation.

Live Oak County: Stanolind Oil & Gas Company's Pearl Harris 1, wildcat 2½ miles north-northeast of George West, recovered 180 feet of oil and 22 feet of salt water on drill-stem test at 7415-21 feet. Another drill-stem test at 7409-13 feet recovered 105 feet of oil- and gas-cut mud with 500 pounds working pressure. Hole was cored below 7632 feet following these tests.

☆ Upper Texas Coast

Discovery Between Kubella, Hutchins Fields Completed

Discovery between Kubella and Hutchins fields completed; production tests to be made in Hinkle's Orange County wildcat; South Mayes west extension test dry; Willow Slough production extended north; north flank test at Orchard flows gas and condensate.

Wharton County: Gilcrease Oil Company has completed W. W. Duson 6, discovery between the Hutchins and Kubella fields. On potential the well flowed 145 barrels of 24.4-gravity oil daily through 10/64-inch choke. Total depth is 4667 feet with 5½-inch casing set on bottom and perforated at 4663-66 feet. The well is 6200 feet west of production in Kubella field and about 1½ miles east of production in Hutchins field.

Orange County: Casing has been set for production tests in Hinkle Drilling Company's Miller-Vidor Land Company 1, wildcat nine miles north and a little west of Hinkle's recent North Port Neches discovery. Total depth is 7910 feet with 5½-inch casing set on bottom. The test had shows at the following intervals: gas and condensate at 6943-66, 7267-82, 7577-82 and 7767-98 feet, and oil saturation at 7329-41 feet. The sands are located in the Frio formation.

Chambers County: Humble Oil & Refining Company's M. E. Mayes 8, Acct. 2, west extension test at South Mayes field, has been plugged as dry at 9935 feet. It is 3400 feet west of the Lula Wallis 1 discovery, nearest producer.

Sun Oil Company's Hebert & Broussard 1 has extended production at Willow Slough field about a mile north. On initial test the well flowed 31 barrels of 46-gravity condensate daily through ¼-inch choke with 1250 pounds flowing pressure on tubing and 300 pounds casing pressure. Gas-oil ratio was 79,660/1.

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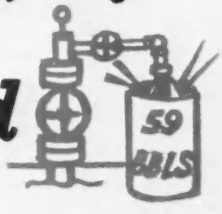
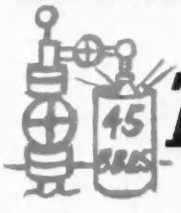


and on the next smaller size, 6/64", it under-produced.



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Total depth, in third deviated hole, is 8464 feet with 5½-inch casing set on bottom and perforated for completion at 8350½-54½ feet.

Fort Bend County: Windsor Oil Company's Jaloway Heirs 1 has extended production off the north flank of Orchard field. No gauge of production has been made but on initial tests it flowed gas, condensate and wash water with 1700 pounds pressure on the tubing and 1800 pounds pressure on casing. Total depth is 8249 feet with 5½-inch casing set on bottom and perforated for completion at 7450-95 feet.

☆ South Louisiana

Jefferson Parish Barataria Field Gets Mile Extension

Barataria extended a mile westward; Bayou Choupique area production confirmed; Magnolia to deviate hole in Gulf of Mexico wildcat; Humble completes Kaplan area discovery; Swords area discovery given potential; second well at Alliance completed in new sand.

Jefferson Parish: Barataria field has been extended a mile west by The California Company's Rathborne Land Company 1, 2-16s-23e. On initial gauge the well flowed 260 barrels of 36.7-gravity oil daily through 5/32-inch choke with 1500 pounds flowing pressure on tubing and gas-oil ratio of 888/1. Total depth is 10,700 feet with perforations in the 7-inch casing at 8930-38 feet.

Calcasieu Parish: Production in the Bayou Choupique discovery area has been confirmed by Union Sulphur Company's J. G. Gray Estate 1, ¼ mile north of the Ellender 1 discovery. Gauge of initial production was 22 barrels of 41-gravity condensate with 850,000 cubic feet of gas daily through 8/64-inch choke. Total depth is 9500 feet with 5½-inch casing set to 8626 feet and perforated for completion at 8612-16 feet. This is a new sand for the field. The discovery produces from Marginulina sand at 8825-31 feet.

Terrebonne Parish: Magnolia Petroleum Company plans to deviate hole at State 1, mineral lease 673, wildcat in the Gulf of Mexico. Total depth is 12,874 feet where hole will be plugged back for deviation. The wildcat is reported to have sands with oil show at 11,676-85 feet.

Vermilion Parish: Humble Oil & Refining Company's Romaine et al 1 has been completed as the discovery well of Kaplan field. On potential the well flowed 62 barrels of 31.2-gravity oil daily, with no water, through ¼-inch choke. Tubing pressure was 70 pounds and gas-oil ratio 183/1. Total depth is 12,482 feet with 5½-inch casing set to 11,876 feet and perforated for completion at 11,066-80 feet. Humble made extensive tests in this well before successfully shutting off a large salt water flow.

St. Landry Parish: Stanolind Oil & Gas Company's Guillory 1, discovery in the Swords area, flowed on potential 97 barrels of 46.2-gravity oil daily through 10/64-inch choke with tubing pressure 2500 pounds and casing pressure 2250 pounds. Total depth is 9861 feet with 7-inch casing set to 9452 feet and perforated for completion at 8952-58 feet.

Plaquemines Parish: The California Company's Louisiana Citrus Lands 1, new sand discovery at Alliance field, has been completed as a gas-condensate well and shut in. Completion was at 9366-70 feet for an ungauged amount of 58-gravity condensate with no water, tubing pressure being 3400 pounds. A previous test of perforations at the completion interval flowed 132 barrels of condensate daily along with 4,625,000 cubic feet of gas.

☆ North Louisiana

Waskom Field Extended Over Border Into Caddo Parish

Waskom field extended into Louisiana; De Soto Parish discovery improving as pumping tests continue; "abandoned" wildcat shows oil.

Caddo Parish: The Waskom field of Harrison County, East Texas border, has been extended into Louisiana with completion of Stanolind Oil & Gas Company's Fred Wappler 1, C NE SW 20-17n-10w, Greenwood area. The well is flowing 10 million cubic feet of gas per day from the Pettit through 36/64-inch choke and from perforations at 5632-70 feet which were treated with 5000 gallons of acid. It is making 15 million cubic feet of gas daily from the Travis Peak perforations at 6058-76 and 6090-6102 feet. Total depth is 6218 feet with production casing set at 6191 feet. The well is shut in without pipe line outlet and the amount of distillate it is capable of producing is unknown. Operators have applied for permission to dual complete.

De Soto Parish: F. A. Callery is pumping 100 barrels of 46.2-gravity oil and 15 barrels of salt water daily from Bessie C. Strauss 1, 19-14n-14w, discovery of the Kickapoo field. Production is from the Paluxy at 4070-78 feet. Sohio Petroleum Company is purchasing the oil and trucking it to market.

Bossier Parish: E. C. Johnston and James M. Forgotson are swabbing to test Blocker 1, 1-22n-13w, abandoned wildcat 3 miles northeast of Plain Dealing which was drilled by British American Oil Producing Company to the Rodessa in 1942-43. The well was turned over to M. H. Marr and G. H. Vaughn and carried to total depth of 6519 feet in the Pettit, where it was abandoned. Johnston and Forgotson took over the well in 1943 and tested the Pettit, which indicated oil but not in commercial quantities. When operators went back to the hole recently to pull casing fluid was found containing considerable oil. At 4000 feet tubing was run, the well kicked and made a head of oil accompanied by gas. About 800 feet of oil was later swabbed and an increase of 200 feet of fluid was noted in a short time. Tests will continue to determine if a commercial producer can be made.

☆ Arkansas

Lafayette and Miller Tests Indicate New Shallow Pay

Two field tests in Miller and Lafayette counties get indications of new shallow pay production.

Miller County: The Carter Oil Company et al's Philyaw 1, C SW SE 36-16s-27w, north flank of the shallow Fouke field, is drilling below 5000 feet in an Anhydrite stringer, after obtaining indi-

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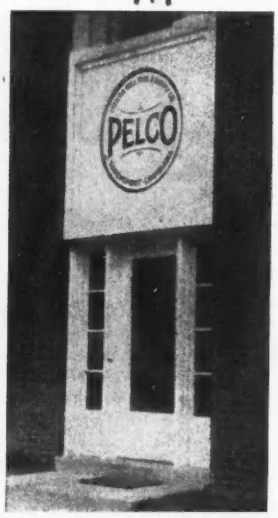

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cations of gas-distillate production from the Kilpatrick horizon of the Rodessa at 4931-44 feet. An 18-minute drill-stem test recovered 570 feet of gas-cut mud and a show of distillate. Another 18-minute test recovered 60 feet of gas and oil-cut mud and 30 feet of black oil. Operators may have discovered a new producing pay, but drilling will continue as scheduled to the Smackover lime. The test is checking 160 feet higher on structure than the Sturgis 1, 1-17s-27w, the field discovery well, in which the Kilpatrick carried salt water. Philyaw 1 was located on the potential updip in structure to catch the Travis Peak, Cotton Valley and Smackover horizons that carried showings in the discovery well.

Lafayette County: Henry F. Briley's Owen 1, C NW SW 16-16s-24w, south offset to the Rodessa discovery of the West Lewisville field, has had showings indicating commercial potentiality in the Tokio sand. The well is drilling tight but reports say it cut a fault and logged sand with good shows at 2440-50 feet, shale at 2450-60 feet, and more Tokio sand from 2460-80 feet. Drilling continues below 3378 feet.

Spartan Drilling Company reported its new Travis Peak producer, W. C. Dean 1, NW NW 15-16w-22w, which was reworked from an old producer on the east edge of the Buckner field, is making good production, and is capable of exceeding the 100-barrel daily allowable. This is the first Travis Peak production in the twin county field, with 29 wells in the Smackover.

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☆ Mississippi

Jefferson County Gasser Is State's First Strike of Year

Jefferson County gasser completed for year's first discovery; Jones County prospect looks good.

Jefferson County: The California Company's W. G. Greer 2, NWc NE¼ 10-9n-4e, has been completed for the state's first discovery of the year. The well was drilled to 2225 feet in salt to establish the discovery of the McBride Dome and then plugged back to the Cockfield zone where casing was perforated at 1452-60 feet with 60 shots. On initial production test the well flowed 407,000 cubic feet of sour gas per day with tubing pressure 162 pounds.

Jones County: Gulf Refining Company's L. L. Majors 1, SEc NE 29-6n-11w, continues as the state's hottest prospect after logging good shows of heavy oil. Subsequent to the shows developed at 7595-630 feet, cores also recovered saturated sands at 7643-46 and 7681-700 feet. Fair shows of heavy oil were also recovered in cores taken at intervals between these points. In a drill-stem test at 7676-700 feet only salt water was recovered, however. Approximately 100 feet of potential productive sand in the Eutaw and Upper Tuscaloosa horizons is indicated from the test.

Yazoo County: The Carter Oil Company's Carl Day 1, wildcat in C NE NE 9-12n-3w, has recovered fairly porous sand with good stain and odor from cores at 6504-10 and 6511-17 feet in the Tuscaloosa zones. Previous shows were also noted from cores above these intervals, although a drill-stem test failed to develop anything interesting. Driller is continuing with tests.

Clarke County: Hunt Oil Company's Long Bell Petroleum Company 3, SWc 29-1n-18e, Langsdale field, has been successfully completed with an initial production of 16 barrels of oil and 4 barrels of salt water per day.

Adams County: Phillips Petroleum Company's Mrs. Vic Artman 2, 36-8n-2w, offset of the discovery well, is drilling below 6529 feet without encountering productive zone. Saturation was encountered by the Artman 1, in the Wilcox zone at the 5600-foot level, but no shows have been reported from that section. In the La Grange field Texas-Pacific Coal & Oil Company's O. L. Wilson 1, N&E SWc 8-6n-2w is undertaking to establish production after running into some trouble with salt water. In a drill-stem test at 6252-67 feet, 4300 feet of fluid was recovered in 40 minutes, of which about 40 per cent was salt water. With packer at 6180 feet, well later tested only mud and drill water. Perforations have been squeezed for a retest.

Wayne County: Humble Oil & Refining Company's G.M.&O. Ry Co. B-2, NEc 24-9n-8w, wildcat is drilling below 8968 feet. Tuscaloosa was extensively cored between 7148-8290 feet with no shows indicated.

Lamar County: Gulf's Mrs. Rubu Entrikin 1, SEc SE SW 32-2n-16w, in the rapidly expanding Baxterville field, was successfully completed with an initial flow of 130 barrels of 15-gravity oil per day. Production is from 4 sets of perforations in the lower Tuscaloosa between 8790-898 feet. The Texas Company's Mrs. G. W. Bilbo 2, NWc SE SE 8-1n-

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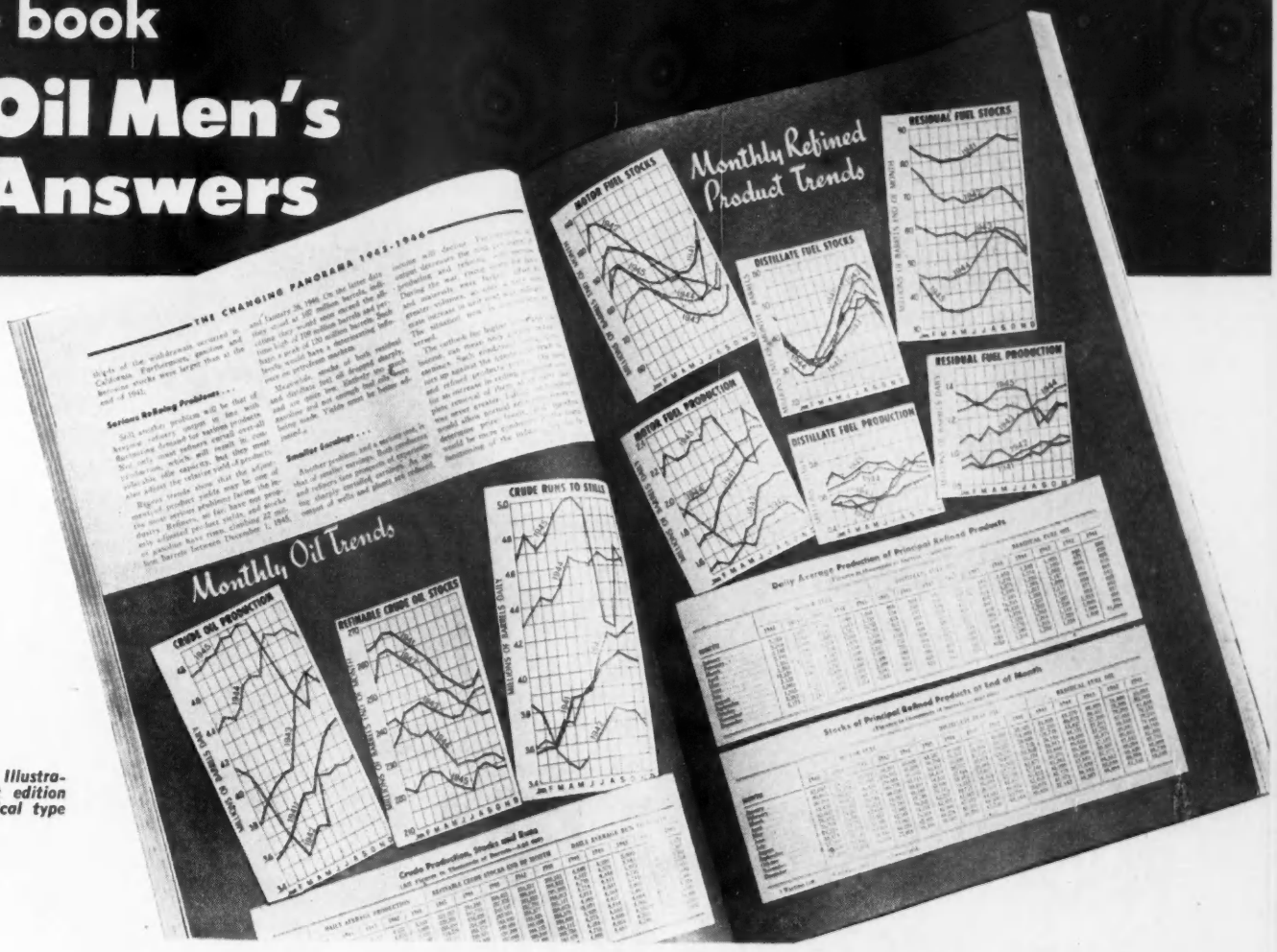
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16w, is preparing to install pump after establishing productive section in the lower Tuscaloosa. After resistance to perforation was encountered the section was acidized with 2000 gallons and the well flowed on gas lift at the rate of 30 barrels per day.

☆ Ohio

Richville Pool, Stark County, Given Southwest Extension

Richville extended southwest; large gas well at Woodsfield; South Madison has oil extension; 2 Cinnamon wells noted in Newton.

Stark County: Belden, et al., moved south and west of Shearer 1 to extend the Richville pool nearly ½ mile with a gas well on the M. C. Werstler tract, NE SW 3, Bethlehem Township. The red Clinton at 4435-75 feet yielded 300,000 cubic feet and the white sand at 4475-509 feet gauged 2 million cubic feet more. After shooting, the well was shut in at a gauge of 3½ million.

Monroe County: Jero Oil and Gas Company struck a large gas well in the Berea sand on Jerry Jackson, SW SW 16, Center Township. Top of the sand was reported at 2084 feet and the gauge at nearly 3 million. This well was the third and largest of the recent Berea sand completions east of Woodsfield.

Perry County: Mount Perry Coal Company moved ⅓ mile west from the Kehota Mining Company 1 to bring in a better well on the No. 2 location, SW SW 34, Madison Township. The Clinton sand at 3349-81 feet was shot and flowed 20 barrels and swabbed another 30 barrels the first day.

Licking County: Two good wells were drilled in by Ohio Fuel Gas Company in the shallow Cinnamon pool in Newton Township. L. J. Rauch 2 started to pay at 1085 feet and at 1265 feet was making 250,000 cubic feet. Drilling was stopped at 1327 feet. H. F. Atwood 1, ½ mile east, was making 450,000 feet in the same horizon when water was encountered unexpectedly. After plugging the water back the well is to be tubed.

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☆ Michigan

Stony Lake Offset is 26 Feet Low to Discovery in Traverse

The Carter Oil Company's Miller 2, NE NW NE 14-13n-18w, Oceana County, 1320 feet south of the Stony Lake discovery, logged Traverse lime at 1641 feet, 26 feet lower than the play opener and on a 3-hour and 40-minute drill-stem test flowed oil at the rate of 5 barrels per hour with an increasing salt water cut. Test was made at 1649-63 feet. Later hole showed 300 feet of oil and 800 feet of water.

Drilling was going ahead at 1831 feet but the company may cancel the original plan of drilling to 4200 feet for a test of Richfield-Sylvania beds, because of the sharp structure pitchoff. Results on the first offset in the play left some doubts as to the area's importance.

Midland County: Collin and Whitney are moving in cable tool rig on O'Dell 1, S½ SE NW 7-15n-1w, Jerome Township, about 4 miles southwest of Edenville oil pool. The test has major and independent company support.

☆ Rocky Mountain Area

Tensleep Discovery in Quealy Field, Wyoming, Goes on Pump

Wyoming's Quealy field Tensleep discovery put on pump; Fremont County test below 12,000 feet with Frontier believed near; Pure's Washakie County discovery still burning; Southeastern Colorado wildcat nears abandonment; Continental to deepen dry holes on west side of Rangely field.

Wyoming

The California Company Tensleep discovery well in the Quealy field, Holst 2, C NE SE 13-17n-77w, Albany County, has been put on pump and made 192 barrels of oil in 19 hours. The oil is 22 gravity, asphalt base, and probably will not be marketed at the present time. Quealy field produces light oil from Cretaceous sands and this is shipped via pipe line to Wyoming refineries. The Quealy Tensleep discovery was made 3 weeks ago with Tensleep topped at 5480 feet and total depth at 5654 feet. Production is through perforations in the upper section of the sand, with water tested in the lower 50 feet.

Fremont County: The test being drilled by Sinclair Wyoming Oil Company in the Lysite area west of Casper is below 12,000 feet, and geologists are hoping to find Frontier sands in the next 500 feet. The well is Unit 1, NE NE NW 35-39n-91w, on a seismic high shot by Sinclair two years ago.

Washakie County: Fire-fighters from Texas have been unable to extinguish

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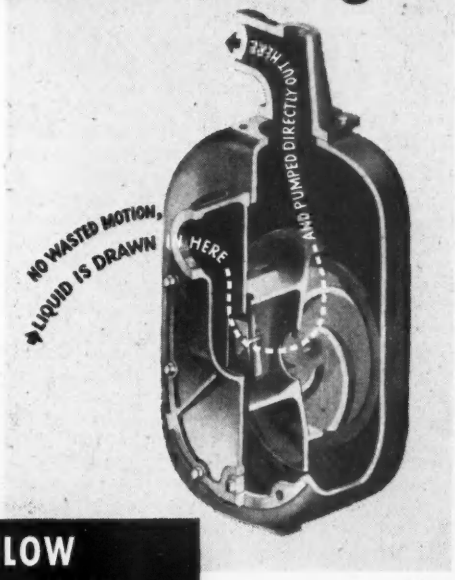

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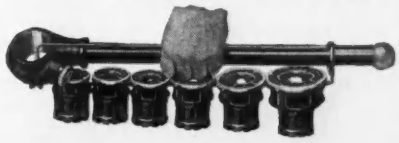

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the fire at The Pure Oil Company discovery in the River Dome field at Unit 1, NE NE NW 18-48n-92w. The fire was ignited by tracer bullet after a connection on the Christmas tree blew off and 5 million cubic feet of gas with high hydrogen sulphide content was venting to the air. The rig was destroyed and has now been cleared away, and 2 shots of nitro have been used to shoot off the valve connection at the well head so that the well can be shut in. This well was one of the most important discoveries in the Rocky Mountain Region in 1946, and was the first deep basin discovery following seismic exploration. It was completed at a cost of $800,000 at 11,379 feet, total depth, in the Embar formation between 10,020-055 feet. Initial production from the well was 60 barrels of 42-gravity oil daily with 500,000 cubic feet of gas through ¼-inch choke, but the well was acidized and thorough production tests had not been made prior to the fire. This has been one of the most interesting operations in Rocky Mountain oil history, because of the depths and high pressures involved in development. Pure is now starting its fifth test on the structure 2 miles southeast of the discovery. The only well on production, Unit 3, 1 mile southeast of the discovery, is now producing approximately 500 barrels of oil per day through choke following acidizing.

The Neiber Dome discovery by G & G Drilling Company at Unit 1, SE NE NW 19-45n-92w, 20 miles south of River Dome, has been trying to free frozen tubing after testing at the rate of 38 barrels of 41-gravity oil in 4 hours from the Embar formation at 10,025 feet.

Colorado

Another Southeastern Colorado wildcat is nearing abandonment after testing water in lower sands. The California Company's Wiley Area test at Luster 1, C SE NE 10-22s-47w, Prowers County, 2 miles northwest of the town of Wiley, is testing water through perforations in the Marmaton between 3852-70 feet. This well has been carried as a tight operation but the company has now released the following tops: Morrison 810, Permian 1080, Kansas City 3493, Marmaton 3800, Mississippi 4750, Simpson 5255, Arbuckle 5289. No shows were reported in the company release, but 7-inch casing was run to 4031 feet after plugging back from 5616 feet, total depth, to 4046 feet.

Rio Blanco County: In Rangely field, Continental Oil Company plans to carry deeper its 2 apparent dry holes on the west side of the field. Rooth 3, C NE NE 27-2n-103w, was at 6908 feet, total depth, preparing to core after topping Weber sand at 6676 feet and testing salt water between 6781-85 feet. At total depth the well is below the level believed to carry water on that side of the field. The company's Rooth 4, C NW NW 22-2n-103w, is also to be deepened after swabbing 88 barrels of fluid in 8 hours between 6915-50 feet. Water content of the fluid was 40 percent. The Weber sand in this field is estimated at 800 feet thick, and Continental may hope to find production below some of the non-porous sand zones in the lower section. Also, this side of the field is believed to be extremely faulted and the company may hope to find trapped accumulation.

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Greatly Expanded Program Announced by Gulf Research

After spending $750,000 in six years on geological reconnaissance and geophysical work in Alberta, Gulf Research and Development Company has announced a greatly expanded program for 1947 which will cost a minimum of $1 million.

Plans call for the immediate drilling of the firm's first Canadian well, an estimated 12,000-foot wildcat near Pincher Creek in the Southern Alberta Foothills, within 30 miles of the U. S. border. Exact site has not been announced. The location follows four years of seismograph work in the area and Canada's first refraction shooting. Objective is the Madison limestone.

Expanding to the Central Alberta Plains, Gulf has acquired reservations on nearly 600,000 acres in virgin territory east of Red Deer City after two years of gravity meter reconnaissance. Refraction seismograph shooting has started for closer data on gravity meter anomalies.

A third item on Gulf's 1947 program is the participation with Imperial Oil Ltd, Shell Oil Company, McColl-Frontenac Oil Company and Socony-Vacuum Oil Company in Operation Muskeg, $1 million plus venture in the Northern Alberta Foothills. A 69-mile road is now being completed to the Muskeg drill site and a rotary rig will be moved in next spring. Objective is the Madison limestone, likely depth more than 10,000 feet.

CALIFORNIA WILDCATS

Kern County — Failures: Jergins Oil Co.'s Bigelow 17, 1-31s-29e, Arvin area, Granite 2959, abnd 1-13-47 at 3057.

Anthony Oberholtz's Bosworth 1, 4-29s-20e, Bacon Hills area, abnd 1-12-47 at 547.

Los Angeles County—Failure: Barnsdall Oil Co.'s Dodge 1, 32-5n-16w, Castaic area, abnd 1-13-47 at 5984.

ILLINOIS WILDCATS

Cumberland County—Failure: John B. Buchman's Price 1, sw nw sw 31-11n-7e, abnd 2413.

Fayette County—Failure: Nat. Assoc. Pet. Co.'s Kistler 1, ne sw nw 17-6n-24, abnd 2140.

Jefferson County—Failure: Nat. Assoc. Pet. Co.'s Ward 1, ne ne ne 23-2s-2e, abnd 2832.

Madison County—Failures: Eason Oil Co.'s Gilomen 1, n½ ne ne 11-4n-6w, abnd 1883.

B. F. Thompson's Zahner 1, sw se sw 17-4n-4w, abnd 3111.

Shelby County — Failure: Nat. Assoc. Pet. Co.'s Burgess 1, ne ne sw 4-9n-6e, abnd 2322.

INDIANA WILDCATS

Gibson County—Failure: Halliburton Houghton's Sloan 1, se sw nw 4-2s-10w, abnd 2103.

Posey County—Failures: Joe Reznik's Owen 1, nw se nw 36-4s-14w, abnd 3025.

Calvert & Willis' Rickens 1, 1-5s-14w, abnd 3030.

Carter Oil Co.'s Leffel 1, nw se sw 28-6s-14w, abnd 2985.

Vanderburg County—Failures: E. P. Jarvis' Calvert 1, nw nw se 29-4s-11w, abnd 2639.

C. E. O'Neal's Martin 1, se se ne 33-4s-10w, abnd 2405.

Brinkerhoff Drlg. Co.'s Mesker 1, se sw sw 27-7s-11w, abnd 2628.

Washington County — Failure: Washington County Development Co.'s Cauble 1, nw nw ne 10-1n-3e, abnd 2025.

KANSAS WILDCATS

Butler County — Failure: E. H. Adair's Brown 1, sw se sw 12-25s-4e, abnd 2800.

Cowley County—Oil Discovery: Kewanee Oil Co.'s Crombs 1, ne ne se 5-30s-5e, pump 50 bbls fr Bartlesville, 2851-53, td 2863.

Cowley County—Failure: H. H. Blair's Moyle 1, nw nw se 5-31s-4e, abnd 3329.

Ellis County—Failure: Royer & Farris et al's Ellis 1, nw sw sw 5-13s-18w, abnd 3900.

Graham County — Failure: Western Drlg. Co.'s Johnson 1, se se se 11-10s-22w, abnd 4019.

Meade County—Failure: Stanolind's Adams 2, ne ne sw 9-35s-30w, abnd 8243.

Marion County—Failures: D. Wilson's Holub 1, nw sw se 5-19s-4e, abnd 2432.

Veeder Drlg. Co.'s Rosenberg 1, sw nw sw 15-20s-3e, abnd 2952.

Rush County—Failures: Iron Drlg. Co. et al's Herrman 1, nw nw nw 13-16s-18w, abnd 3579.

Cross & Eresch's Schroeder 1, sw sw ne 1-19s-18w, abnd 3678.

KENTUCKY WILDCATS

Daviess County—Oil Discovery: Fox & Fox's Grant 3, 14-P-28, pump 11 bbls fr Jackson, 1488-1500, td 1515.

Henderson County—Failure: Sun's Royster 1, 20-O-22, abnd 2638.

SOUTH LOUISIANA WILDCATS

St. Landry Parish — Oil Discovery: Stanolind's Ezeb Guillery 1, 933 s 330 e of nwc sw¼ 29-6s-2e, 2 mi ne prod, 3 mi w sw Sword's township, pay 8950-65, perf 18 shots 8952-58, flow 97 bbls 46.2½ gr, 10/64-in, tp 2500 lbs, cp 2250 lbs, comp 12-29-46 at 9861.

St. Mary Parish—Failure: Humble's Humble-Cote Blanche 1, fr USCGS "Cote Blanche" at Lat 29° 44 min 56.965 sec and Long 91° 42 min 58.316 secs, go n 36° 28 min w 6010 to lcn in undetermined Sect twp-15s-7e, abnd 12-11-46 at 13,281.

Vermillion Parish — Kaplan Oil Discovery: Humble's Alfred Ray Romaine et al 1, fr nec sect 25 sly alg el 1991.8 th wly parallel to nl 660 to lcn in 25-12s-1e, pay 11,066, perf 84 shots 11,066-80, flow 62 bbls 31.2-gr, ¼-in, gor 183/1, tp 70 lbs, comp 1-8-47 at 12,482.

SOUTH LOUISIANA NEW PAY TEST

Plaquemines Parish—Alliance Distillate Discovery: Calif. Co.'s La. Citrus Lds. 1, 16-16s-24e, pay 9346-70, perf 24 shots 9359-62, 9366-70, flow 58-gr dist, tp 3400 lbs shut in, comp 12-18-46 at 9800.

MICHIGAN WILDCATS

Allegan County—Failures: Fortney & Harris' Hartman 1, ne ne se 1n-16w, abnd 1-7-47 at 1157.

Circle Drlg. Co.'s Doud 1, ne nw nw 16-1n-14w, abnd 1-4-47 at 1330.

S. L. Godfrey's Meshkin 1, sw nw ne 24-1n-15w, abnd 1-8-47 at 1261.

Smith Pet. Co.'s Walker 1, nw ne nw 28-3n-11w, abnd 1-4-47 at 1890.

C. A. Perry's Schoendorf 1, nw se sw 4-1n-16w, abnd 1-15-47 at 1689.

Bay County — Failure: Lincoln Drlg. Co.'s Johnson 1, se nw sw 36-18n-3e, Dundee lime 2855, abnd 1-9-47 at 3082.

Gratiot County—Failure: Ray W. Matlock's Peters 1, ne ne se 2-10n-2w, abnd 1-15-47 at 907.

Isabella County—Failure: Colling & Walton's Bowers 1, se ne se 23-15n-5w, Dundee lime 3767, abnd 1-11-47 at 3787.

Kent County—Failure: S. L. McCall's Hull 1, se se sw 8-9n-11w, Traverse lime 2362, abnd 1-17-47 at 2405.

Midland County — Failure: Union Drlg. & Prod. Co.'s Guest 1, nw nw nw 5-16n-1w, Dundee lime 3781, abnd 1-15-47 at 4008.

Saginaw County—Failure: C. W. Teater's Lacko 1, se se se 34-12n-2e, abnd 1-16-47 at 3212.

Tuscola County — Failure: Basin Oil Co.'s Timko 1, nw nw se 4-13n-9e, abnd 1-10-47 at 2951.

Van Buren County—Failure: Stuart L. Godfrey's Houghton 1, sw sw ne 16-2s-13w, abnd 1-19-47 at 1290.

Wexford County—Failure: William A. Comstock's Carlson 1, se nw se 17-21n-9w, Dundee lime 3861, abnd 1-19-47 at 4190.

MISSISSIPPI WILDCAT

Jefferson County — Gas Discovery: California's W. G. Greer 2, nwc ne¼ 10-9n-4e, flow 407,000 gas, 13/64-in, fr 60 perf at 1452-62, comp 1-7-47 at 2225.

MONTANA WILDCAT

Wheatland County—Failure: R. C. Tarrant's Williams 2, ne ne se 21-9n-13e, Haymaker area, Big Elk 795, abnd 1-12-47 at 850, comp as wtr well.

OHIO WILDCATS

Cuyahoga County—Failure: R. Hoey et al's Lynda Meikle 1, Lot 4, Solon Twp, Clinton 3680-3807, abnd 1-9-47 at 3896.

Medina County—Failure: Ohio Fuel Gas

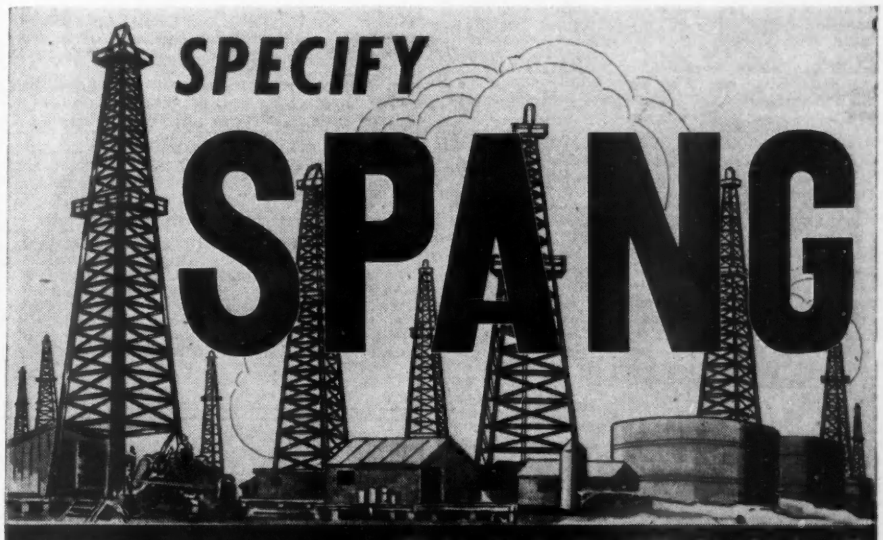

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Fig. F533 Fig. F538

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(Fig. F533)

SPANG TRAP SOCKET
(Fig. F538)

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Co.'s E. C. Mueller 1, Lot 6, Chatham Twp, abnd 1-7-47 at 3140.

OKLAHOMA WILDCATS

Cotton County—Failures: Hadley & Harman's Franklin 1, sw sw ne 10-1s-10w, abnd 2950.

Art Wagoner's Jensen 1, ne se nw 34-2s-11w, abnd 1884.

G. E. Kadane & Sons' He-mi-noke-ky 1, nw ne sw 22-2s-12w, abnd 2013.

C. B. Christie's Stegall 1, se se ne 33-3s-11w, abnd 1554.

Anderson-Prichard Oil Corp.'s Atch-e-su-ah 1, nw sw sw 35-3s-11w, abnd 1507.

Nat. Assoc. Pet. Co.'s Cooper 1, nw nw se 4-4s-9w, abnd 2517.

Akin & Dimock's Brown 1, ne sw sw 6-5s-12w, abnd 1591.

Akin & Dimock's Brown 3, sw ne sw 6-5s-12w, abnd 1647.

Garvin County — Oil Discovery: Carter & Vierson's Hart 1, se se se 23-3n-3w, pump 20 bbls fr Bromide 7206-28, td 7721.

Jefferson County—Failure: S. D. Johnson's Rolls 1, se sw se 15-5s-8w, abnd 2600.

Lincoln County—Failures: Falcon-Seaboard's Patterson 1, 20-13n-5e, abnd 3745.

W. C. McBride's Lochner 1, nw ne se 7-15n-4e, abnd 3935.

McClain County—Failure: Carter Oil Co.'s Price 1, ne ne 13-7n-4w, abnd 10,885.

Okfuskee County — Failure: Texola Drlg. Co.'s Replogle 1, sw nw se 33-12n-8e, abnd 3500.

Tillman County—Failure: J. D. Andrews' McCarey 1, sw sw ne 10-2s-15w, abnd 2270.

WEST TEXAS WILDCATS

Andrews County—Failures: Placid Oil Co.-Gulf's Thornberry 2, c sw se PSL 3, blk A-42, elev 3214, Glorietta 5700, Wolfcamp 8600, Woodford 9980, Devonian 10,100, Silurian 11,285, abnd 1-15-47 at 11,337.

Union of Calif.'s Means 1-F, c nw ne PSL 1, blk A-46, elev 3191, anhydrite 1945, salt 2080, Yates 3050, Grayburg 4300, San Andres 4615, abnd 1-20-47 at 4756.

Presidio County—Failure: Argo Oil Corp.'s Mitchell-State 1, c ne sw TW&NG Ry. 40, blk 1, elev 5338, base volcanic ash 2250, Cretaceous 2250, lime 2330-3010, Permian 3600, Wolfcamp 4880, abnd in Pennsylvanian 1-9-47 at 9993.

WEST TEXAS OUTPOSTS

Ector County — Wheeler Failure: Lion Oil Co.'s TXL 1, c nw nw T&P Ry. 17, blk 46, T-1-S, 1 mi e of s end of fld, elev 3103, Glorietta 5280, Clear Fork 5650, base Permian 7915, Mississippi 7960, Woodford 8130, Devonian lime 8480, Devonian chert 8555, abnd 1-12-47 at 8670.

Pecos County—Fort Stockton Failure: Texas Co.'s Parke 1, c sw ne T. & St. L. Ry. 6, blk 146, 1½ mi nw and sw of prod, elev 2876, Yates 2918, abnd 1-9-47 at 3170.

WEST CENTRAL TEXAS WILDCATS

Callahan County—Failures: R. R. Kolp et al's Smedley 1, 1200 snl 150 wel sect 5, Victoria CSL sur 37, abnd 1-4-47 at 1155.

H. A. Stebbinger et al's Kennard 1, nw nw nw E. T. Ry sect 10, elev 1876, abnd 12-31-46.

Coleman County—Failure: Lancaster Bros. et al's Norton 1, 1600 out nwc E. Humphreys sur 96, elev 1486, Bend 1264, abnd 12-31-46 at 2129.

Jones County—Failure: W. D. Baker et al's Baker 1, 150 wel 720 nsl Wm. Smith sur 14, abnd 12-21-46 at 1886.

NORTH TEXAS WILDCATS

Clay County—Failure: H. S. Gray et al's McCarty 1, 150 snl 840 wel blk 40, Specht & McCutcheon sur, elev 1034, abnd 1-1-47 at 765.

Clay County — Oil Discovery: Continental-Edge Oil Co.'s Scott 1, 467 out nwc TE&L Co. Sect 3239, elev 1049, Bend 5794, Barnett 6246, Ellenburger 6479, pump 58 bbls 40-gr oil, 19,000 gals acid Ellenburger 6485-6515, comp 1-16-47 at 6515.

NORTH TEXAS NEW PAY TEST

Young County—Failure: Russell Maguire et al's Casey 1, 467 out nwc sect 1486, TE&L Co. sur, near old shallow pumpers, elev 1195, Smithwick 4370, Bend 4388, abnd 1-11-47 at 4402.

EAST TEXAS WILDCATS

Henderson County—Failure: E. B. LaRue, Jr., et al's Faulk & Coleman 1, 366 wel 480 nsl of 218.97-ac tr and R. S. Rayburn sur, elev 510, Pecan chalk 1756, Austin chalk 2580-2830, Woodbine 2925, abnd 1-9-47 at 2938.

Houston County—Failure: Standard of Kansas' Lundy-Humble 1, 2525 fr nel 2725 fr nwl of B. P. Duncan sur in F. del Valle Gr, elev 259, Midway 4210, Navarro 5440, Pecan chalk 5728-5834, Austin 6688-7001, Woodbine 7120, abnd 1-18-47 at 7507.

EAST TEXAS NEW PAY TEST

Wood County—Coke Deep Failure: Amerada et al's Coke-Foster Unit 2, 467 ewl 1320 fr m/s/sl of Berry Smith sur, 2200 nw of 8100-ft gas-distillate well, elev 539, Austin 3940-4027, Woodbine 4493, Georgetown 5105, Paluxy 6246, Glen Rose 6600, Massive anhydrite 7610-7752, Gloyd 8002-40, cut fault 8125, Young 8132-88, Travis Peak 8345, abnd 1-11-47 at 9649 account 11 degrees off vertical.

SOUTH CENTRAL TEXAS WILDCATS

Atascosa County—Failure: Newman Bros.-Forest Oil Corp. et al's G. Friesenhahn 1, 660 fr swl 330 fr sel 260-ac lse, W. W. Bomar sur 218, 3 mi ne Muil fld, abnd 1-8-47 at 5740.

Gonzales County—Failure: Amerada's N. C. Stulting 1, 1850 ne alg nwl Robt. Kelly sur, fr s cor W. H. Baldridge sur, th 1100 se at ra on 1000-ac lse, Wilcox 1920, abnd 1-4-47 at 5612.

SOUTHWEST TEXAS WILDCATS

Jim Hogg County—Failure: Houser & Campbell's Carlos Guerra 1, 330 fr s&wl lot 18, Foster sbdn Guerra ld, sh H-12a, Las Cuevitas Gr, on 1204-ac lse, near Guerra fld, abnd 12-31-46 at 3249.

Starr County—Failure: Continental's Bernice Slick Druchel 1, 1020 fr ely/wl 990 fr nly/nl 381.38-ac lse, 990 fr nl 2000 fr el CCSD&RGNG sur 505, on 567.28-ac tr, 1 mi nw Rincon fld, abnd 1-12-47 at 5001.

LOWER TEXAS COAST WILDCATS

Hidalgo County — Oil Discovery: Roger Lacy's Fee 1, 660 fr n&wl sect 22, American Rio Grande Ld. & Irr. Co. sbdn, J. H. de Bali Gr, 2 mi se Mercedes fld, dual comp: pay 7455, perf 40 shots 7455-65, flow 9,600,000 gas, some 62.8-gr dist, open, gor 250,000/1; pay 7983, perf 72 shots 7983-88, flow 74.5 bbls 34-gr oil, gas-lift, gor 800/1, comp 1-3-47 at 10,711.

Jackson County—Oil Discovery: Blanco Oil Co.-Al Buchanan's John Lind 1, 390 fr nl 1870 fr el J. Heard sur, 125-ac lse, 1 mi se Stewart fld, 1 mi sw Ganado fld, perf 7059-60½, flow 45° bbls oil, 50% wtr, 3/32-in, tp 1400 lbs, comp 12-22-46 at 7415.

Karnes County—Failure: H. R. Smith et al's V. M. Butler 1, 5000 fr sel 1400 fr swl 1637.6-ac lse, Geo. Elliott sur 138, 4½ mi ne Weigang fld, 5 mi sw Hysaw fld, abnd 1-6-47 at 4010.

Refugio County—Failure: Hecar Oil Co.'s Jamie Hynes 1, 1263 fr sl 3000 fr wl 100-ac lse, John Malone sur and Isabell A. O'Brien sur, 3 mi n Refugio, n of Refugio fld, w of Fox fld, abnd 12-15-46 at 6465.

San Patricio County—Failures: H. R. Smith's R. R. Pyron 1, 660 fr nw&swl lot 7, sect 8, Coleman-Fulton pstr Co., 1½ mi n nw Taft, on 73.3-ac lse, abnd 12-22-46 at 2000.

Highland Oil Co.'s Auguste Linnie Malone et al 1, 467 fr n&wl lot 9, Coleman-Fulton sbdn, Patrick Fitzsimmons Lge, 114.4-ac lse, 3 mi w of S. Sinton fld, 2 mi n nw N. Odem fld, abnd 1-8-47 at 6554.

LOWER TEXAS COAST NEW OIL PAY

Brooks County—Pita Oil Discovery: Humble's D. J. Sullivan 6-B, 3350 n of sl 8600-ac lse, San Antonio de Encinal Gr, pay 7768, perf 54 shots 7771-80, flow 243.95 bbls 38.3-gr, ¼-in, tp 1250 lbs, gor 600/1, comp 12-30-46 at 8396.

UPPER TEXAS COAST WILDCATS

Chambers County — Failure: Texas Co.'s Kirby Pet. Co. 1, 467 fr nw&nel 638.77-ac lse on tr 1, Wm. H. Hedges sur, abnd 1-9-47 at 12,855.

Jefferson County—Failure: Humble's Dr. Rogers Pierson 1, 467 fr el 1800 fr sl 200-ac tr, John J. French sur, 3 mi se Lovell Lke, abnd 1-9-47 at 9900.

Liberty County — Oil Discovery: Claud B. Hamill's J. C. Stuart 1, 330 fr nl lot 11, 330 due e of sec lot 9, in lot 11, Thos. Devers sur, 50-ac lse, perf 20 shots 5770-75, flow 159.5 bbls 41.2-gr oil, 0.4% wtr, 10/64-in, gor 919/1, comp 1-2-47 at 5782.

Liberty County—Failure: Nat. Assoc. Pet. Co.'s B. H. Willis Est. 1, 1958 fr wl 660 fr nl 400-ac tr and Thos. Devers sur, abnd 1-7-47 at 9503.

Matagorda County—Oil Discovery: Johnston & Johnston's F. Surkamp 1, 30 fr el 485 fr sl lot 10, blk 2, Josiah Tilley Lge, 47.4-ac lse, pay 8530, perf 12 shots 8533-35, flow 38.2 bbls 43.5-gr oil, 0.1% wtr, 7/64-in, gor 13,000/1, comp 11-22-46 at 10,005.

Matagorda County—Failure: A. H. & C. L. Rowan's M. L. Robertson 1, 467 fr ne&sel lot 21 Moore Cortes Canal sbdn, 63-ac tr, D. Etherton sur, 3 mi s N. Markham fld, abnd 1-9-47 at 10,992.

Lobby Law Registrations In Congress Come Slowly

Some 300 "legislative representatives" of various organizations and groups have registered with Senate and House under the law enacted last year requiring registration of lobbyists.

Most of the petroleum trade associations likely will file reports soon, even though they contend that their activities do not come within the scope of the law. Already, John E. Ferguson, executive director, and Louis E. Whyte of the Independent Natural Gas Association of America have filed their papers, more for the purpose of avoiding embarrassment to the association or members of Congress whom they may contact than because of any feeling that the law applies to them.

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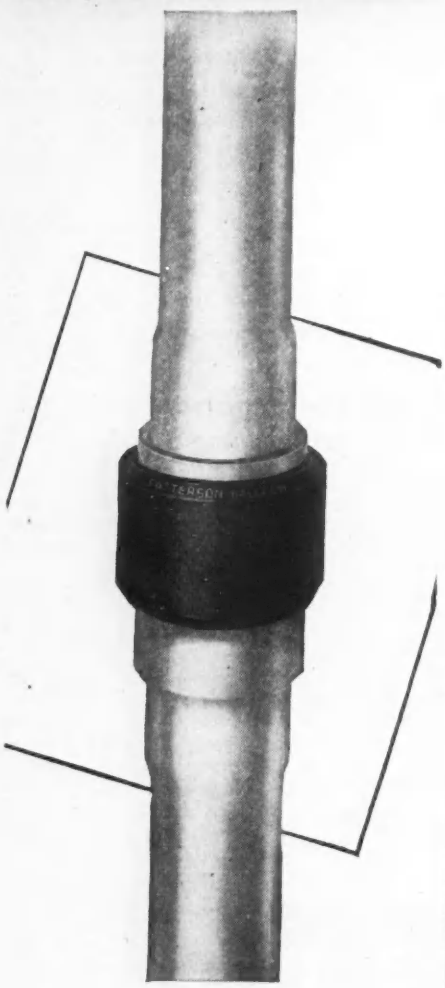

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931 Russ Bldg., San Francisco 4

SQUEAKS from the BULL WHEEL

Anyway, He Feels That Way

"My girl has two of the most beautiful legs in the world."
"How do you know?"
"I counted 'em."

The Woman's Way

"What are you thinking about, John?"
"Same thing you are, darling."
"If you do, I'll scream!"

Hot

"Afraid?"
"Not if you'll take that cigar out of your mouth."

The Naked Fact

"Say, young lady, there ain't no swimmin' allowed in this lake."
"But, officer, why didn't you tell me before I took every stitch of my clothes off?"
"Well, there ain't no law agin' that."

Life Is Like This

"What has more fun than people?"
"Rabbits."
"Why?"
"Because there are more rabbits than people."
"Why?"
"Because rabbits have more fun than people."

This Curious World

Some girls are like cigarettes—they come in packs, get lit frequently, hang onto your lips, make you puff, go out unexpectedly, leave a bad taste in your mouth—and yet they satisfy!

We're waiting for the painted-on stocking fad to extend to bathing suits.

"Woe is me! My wife left me, the house burned down, my daughter left home to join a circus, the bank called in my loan, I lost my job, and the Brooklyn Dodgers lost, 4-3. Just imagine, 4-3 in the ninth!"

Nothing helps a girl's popularity like being easy on the aye.

The greatest time-saver ever invented is love at first sight.

Men are peculiar. A fellow who hadn't kissed his wife in five years shot a fellow who did.

A lively lad was married recently. That makes him a were-wolf.

No Trouble At All

"Well, old boy," said the guest to his host, who had just moved into a new home. "How do you find it here?"
"Upstairs. First door to the left."

Second Choice

The little fellow awoke from his nap, looked down at his triangular trousers, and shouted over to the occupant of the next crib: "Hey, guy, did you throw water on me?"
"Nope."
"Huh. Musta been an inside job, then."

Another Puzzle Solved

"How come redheaded women always marry quiet men?"
"They don't. The poor guys get that way afterward."

Learner, No Earner

"You brute! You deceived me. Before we were married you told me you were well off."
"I was and didn't know it."

Time Without End

"Young man, what do you mean by bringing my daughter home at 4 o'clock in the morning?"
"Gotta go to work at 7, chum."

Rude Rambler

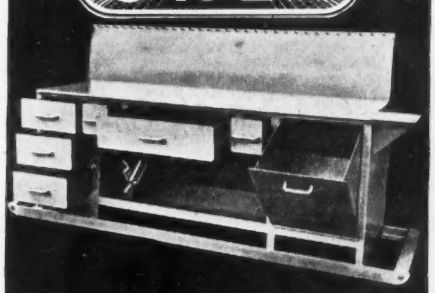
They were having just one more at the bar when an old friend, previously quite normal, came through the door, walked up the wall, across the ceiling, down the other wall, and disappeared through the back door.

There was a moment's stunned silence, then: "What in the world's got into that guy!"
"Yeah, he didn't even speak to us!"

Happens Every Time

"If you refuse me, I'll die."
But she refused him, and sure enough, 60 years later he died.

OWEN



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HOUSTON TEXAS

Harry N. Stamper, construction engineer for Humble Oil & Refining Company's Production Department in Houston, has been appointed assistant chief civil engineer in that department.

Stamper joined Humble in 1927 as a civil engineer, and in 1934 was appointed division civil engineer of the West Texas division of the Production Department, with headquarters in Midland. In 1937 he was transferred to Houston as construction engineer.

Another change in the Production Department's supervisory forces was the transfer of **F. K. Sawyer,** assistant gas plant chief clerk for the Katy Gas Cycling Plant at Katy, Texas, to the Pledger Natural Gas System at Danciger, Texas, as district chief clerk.

»

Dan L. Marshall, petroleum engineer with The Texas Company, New Orleans, was elected chairman of the new Delta Section, AIME. **B. O. Craft,** professor of petroleum engineering at Louisiana State University, Baton Rouge, and **J. C. Posgate,** petroleum engineer with Humble Oil & Refining Company, New Orleans, were elected vice chairmen, and **W. J. Gillingham,** Schlumberger Well Surveying Corporation, New Orleans, secretary-treasurer. Directors elected for two-year terms were **Earl Kipp,** The California Company, and **J. W. Foley,** The Texas Company.

»

Robert Shaw, former landman for Hunt Oil Company in North Texas, has joined Phillips Petroleum Company as scout in the South Oklahoma district with headquarters at Ardmore.

»

Pete Nicola, Jr., assistant landman in North Texas for Phillips Petroleum Company, has been transferred to Bartlesville, Okla., as chief scout.

»

Robert M. Hess has been named division exploitation engineer in Shell Oil Company's East Texas Division office at Kilgore. He was production engineer at Lake Charles, La., and Kilgore for the last five years except for a year at Quitman, Texas, as district superintendent.

»

John N. Gilbert, II, who has been Gulf Coast scout for Standard Oil Company of Texas for three years, has been promoted to scout coordinator for Texas and New Mexico with headquarters in Houston. Prior to his Standard connection, Gilbert was on the Canol project for nine months and for four years previous to that served Mene Grande in Venezuela.

»

W. Holdrinet, with Nederlandsche Koloniale Petroleom Maatschappij (Standard Vacuum Oil Company) in Sumatra, Netherlands East Indies, was a Houston visitor last week. Holdrinet, tool pusher in charge of his company's wildcatting operations in Borneo, is in the U. S. studying drilling methods and inspecting new equipment. He plans to remain for several months.

J. Howard Barnett, Stanolind Oil & Gas Company, was named president of the Casper Engineers' Club, Casper, Wyo. **James D. Anderson,** The Ohio Oil Company, was named vice president, and **M. P. Tixier,** Schlumberger Well Surveying Corporation, secretary-treasurer.

»

W. E. Tracy, chief scout for The Ohio Oil Company in the Marshall Division, has been named to solicit purchase of crude for The Ohio Oil Company in Illinois and Indiana.

William J. Goldston, Houston independent oil operator, and **R. G. Gwilliam,** vice president and Houston Division manager for The Ohio Oil Company, were named directors of the City National Bank, Houston.

»

M. J. Adams, Houston, has been named assistant manager of The Texas Company Producing Department's gas division. Adams had been assistant manager for the West Texas-New Mexico division producing department since 1939.

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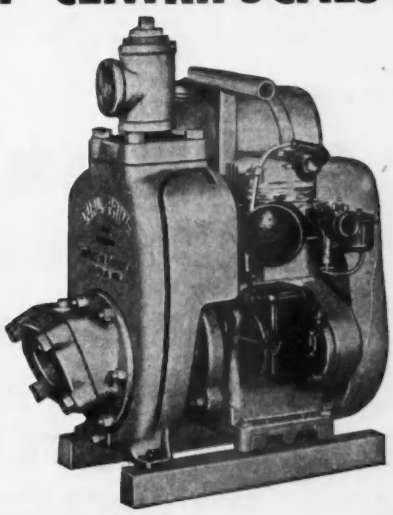

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Specializing in High Pressure Centrifugals . . . Dual Prime Centrifugals
Diaphragm Pumps for the oil field!

Ralph Fanthus has been appointed district manager of the Valley District of Kobe, Inc., with headquarters in the Haberfelde Building in Bakersfield, Calif. Since beginning his association with Kobe in 1933, Fanthus has gained wide experience in the handling of production problems and adaptation of Kobe pumping systems to field conditions. He will continue to operate under the direction of **R. J. Lyons,** division manager in Huntington Park, Calif.

Ralph Fanthus

»

Edward A. Hutchinson has joined Sunray Oil Corporation as geologist in the Tulsa office. Hutchinson goes to Sunray from Bridgeport Oil Company, Wichita, where he was senior field geologist for 2½ years. Previously he was with Phillips Petroleum Company, Wichita, for 3½ years.

»

Carl L. Knoll was appointed sales representative for Republic Supply Company with headquarters at Bartlesville, Okla. He will cover Northern Oklahoma and Southeastern Kansas, which is supervised by **J. H. Brooks,** vice president and general manager. Knoll has been in the oil field supply industry since 1920.

»

F. L. Convers, who formerly was in charge of Continental Supply Company's export department, with headquarters in New York, has returned to his former position of vice president in charge of the export department of the company in New York.

Donald A. MacNeil has joined the sales staff of the forging division of Tube Turns, Louisville, Ky. His headquarters will be in Utilities Building, Chicago.

James S. Cook, J. W. Denny, H. Vinson Grice and **E. E. Wallace Jr.** were named assistant vice presidents of the Republic National Bank of Dallas.

Deaths

Michael M. Valerius, 75, petroleum engineer and geologist, who is credited by many in the industry as the original discoverer of the great Hugoton gas field, died in Shreveport January 18. Valerius, a native of Sigourney, Iowa, attended the Drake University at Des Moines where he studied mining and civil engineering. He took a petroleum engineering course at the Missouri School of Mines at Rolla, and shortly after finishing there moved to Tulsa, where he and the late **V. H. McNutt,** with **Victor H. Hughes,** opened the consulting petroleum geologist firm of Valerius, McNutt and Hughes. Valerius concentrated on the Panhandle of Northwestern Oklahoma, where he is credited with finding the first natural gas in what is now the Hugoton field.

»

Ralph G. Trippett, 50, Shreveport oil and real estate man, was found dead in his automobile on a Memphis street January 15. Trippett acquired holdings in the East Texas field in 1933 and with **Alger H. Meadows,** then of Shreveport and now of Dallas, formed the General American Oil Company of Texas. Since 1936 he had operated as an independent.

»

Samuel T. Miller, 69, Skiatook, Okla., retired employe of Stanolind Pipe Line Company, died in Tulsa January 13.

Arthur L. Bogan, 56, Wichita, Kansas, oil broker and secretary of the old Marland Oil Company of Ponca City, Okla., for several years, died in Wichita January 18.

»

Charles F. Kolp, 70, independent oil man, died of a heart attack January 20 in Electra, Texas. A native of Harrisburg, Penn., Kolp moved to Texas in the early 1880's.

»

Claude B. (Pat) Donovan, 43, designer of oil field drilling equipment, died in Tulsa January 18. He had been with The Carter Oil Company Engineering Department since 1937. A native of Cleburne, Texas, Donovan was graduated from Texas A. & M. College in 1927. He had been with Carter ten years, joining that firm after serving with the Santa Fe Railroad as a field service engineer. Some of Donovan's changes in rig and other drilling equipment have been generally accepted by the oil industry.

»

John Tancred, Jr., 44, sales promotion manager for Jarecki Manufacturing Company, Houston, died in Clarendon, Texas, January 20, of injuries sustained in an auto accident.

Tancred was born in Thurber, Texas, December 6, 1901, and lived his early life in Wichita Falls, Texas, later moving to Dallas, Texas, where he resided until his entrance into the Army Air Force in 1942. He served in three South Pacific invasions and was discharged in January, 1946, with the rank of lieutenant colonel.

»

Campbell M. Hunter, an original partner of the firm of Thompson & Hunter, died in London December 23. Hunter won the Order of the British Empire for extraordinary services during World War I. He was one of the foremost British oil technologists and with **A. Beeby Thompson,** still active in his own business, Hunter was a pioneer in the oil fields of Russia, Peru, Argentina, Burma and Canada. At the time of his death Hunter was president of the Hunter Valley Oil Company, Ltd., of Canada, and president of the Dallas Dome Wyoming Oil Fields. His business as consultant is being carried on by **F. A. Heaton** in London.

»

R. T. Lutz, 48, Wichita Falls drilling contractor, was found dead January 15 with a rifle bullet wound in his chest near one of his active rigs in the Grayson County section of North Texas.

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Huge Truck-Mounted Rotary Rig Completed

The largest truck-mounted rotary drilling rig ever built has been completed, according to Franks Manufacturing Corporation of Tulsa, and is scheduled for delivery to Regie Autonome des Petroles, St. Gaudens, Hte Garonne, France.

The giant rig is to be used for remedial work in gas-producing areas of southern France. "These gas-producing properties were taken over by the Germans during the war and, while not sabotaged, were allowed to deteriorate," declared Carl White, Jr., president of the firm.

The complete rig is mounted on an all-wheel drive truck more than 45 feet in length. It includes draw works, two-engine power plant, two slush pumps, propeller shaft rotary table, and a 90-foot, 200,000-pound capacity telescoping derrick.

The truck engine and the auxiliary engine, both of which may be used for driving the unit over the road and for operating the rig, are of the diesel type and will produce in excess of 350 horsepower.

Designed to telescope to a length of 60 feet when in the over-the-road position, the derrick is raised and lowered by means of a patented power-screw raising device which is operated by power of the truck engine.

Purchase of Cleveland Rock Drill Company Is Announced by Le Roi

Le Roi Company, Milwaukee, manufacturers of internal combustion engines, portable compressors, engine-generator sets and specialized mowing equipment, has announced the purchase of the Cleveland Rock Drill Company of Cleveland.

The purchase of this company, a division of The Cleveland Pneumatic Tool Company, substantially accelerates the rock drill manufacturing program announced earlier, coincidental with the establishment of Le Roi's Cleveland Division.

Russ Morgan, formerly secretary and sales manager of The Cleveland Rock Drill Company, who joined Le Roi over a year ago and was instrumental in the organization of Le Roi's Cleveland Division, will head the expanded facilities.

John M. Dolan, vice president in charge of sales, will head the integration of sales activities of all Le Roi products from the company's headquarters at Milwaukee. Expanded field activities will utilize the company's district offices at New York, Birmingham, Washington, Milwaukee, Tulsa, Butte, and San Francisco, to provide improved coverage to all classes of industry served.

Manufacture of Le Roi-Cleveland products, initially carried on at the Cleveland Pneumatic plant, is being transferred to Le Roi's new Cleveland Division plant at 12500 Berea Road, Cleveland 11.

Seismic Engineering Moves Into Newly-Purchased Dallas Building

Seismic Engineering Company has bought and moved into a new building at 6111 Maple Avenue, Dallas. Previously located at 7000 Hines Boulevard, where a building was shared, Seismic Engineering Company required additional space for its present operations and future expansion.

Seismic Engineering was formed in 1944 by C. G. McBurney, J. H. Pernell, and R. D. Arnett, all of whom were previously associated with National Geophysical Company.

The new plant is on a plot 100 feet wide by 650 feet deep and includes two buildings having a total area of more than 3000 square feet.

English Group Visits Failing Supply Company Plant at Enid

A group of Englishmen, headed by Sir William Stampe of New Delhi, India, made a visit to the George E. Failing Supply Company of Enid, Okla., to inspect the manufacture and operation of Failing portable drilling equipment. Also in the party were A. S. Wade of Washington, D. C., member of the English Supply Mission; E. M. Fones of the Mitchell Engineering Company of London; and John B. Weil, Failing agency representative in Johannesburg, South Africa. They were accompanied by G. P. Gregory, Jr., New York City, Failing export manager.

The Failing Company delivered several portable drills to the English government last year for use in India and the recent visit of the group was for the purpose of inspecting additional equipment.

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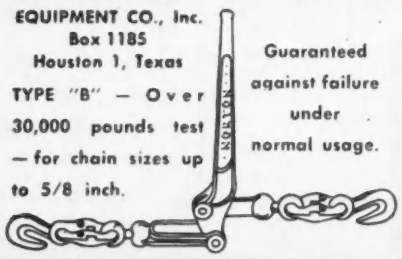
Guaranteed against failure under normal usage.



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Gulf Coast Division Officials Are Named by Oil Well Supply

Appointment of H. P. Fogle as assistant manager of the Gulf Coast Division of Oil Well Supply Company, a subsidiary of U. S. Steel Corporation, was announced by Paul H. Shepherd, division manager. The company's Gulf Coast Division headquarters are in Houston.

Shepherd also announced the appointment of T. C. Tweedie as head of the sub-surface department of the division.

After joining "Oilwell" in 1935, Fogle served in Shreveport, La., and Pettus, Corpus Christi and San Antonio, Texas, before going to Houston in 1944 as a division sales representative.

Tweedie joined the company in 1946 as an engineer in the sub-surface department of the Gulf Coast Division.

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